United States Court of Appeals

for the Second Circuit

EXHIBITS

75-6005

FINAL

ENVIRONMENTAL STATEMENT

B

UNITED STATES POSTAL SERVICE

MANHATTAN VEHICLE MAINTENANCE FACILITY

NEW YORK, NEW YORK

Prepared by

U.S. ARMY ENGINEER DISTRICT, NEW YORK, NEW YORK

26 March 1974

Exhibit A

SUMMARY

Draft ( ) Revised Draft ( ) Final (X) Environmental Statement

Responsible Federal Agency: United States Postal Service

A. TYPE OF ACTION Administrative (X) Legislative ( )

B. DESCRIPTION OF PROPOSED ACTION

Proposed development consists of a major U.S. Postal Service vehicle maintenance facility (VMF) in combination with a multi-story housing project in the lower West Side of the Borough of Manhattan, New York City. The project will occupy an entire city block, presently vacant, adjacent to the Morgan Station mail processing center. Features of the proposed action are a multi-story VMF, a housing project of approximately 360 units utilizing air rights space above the VMF, and the closure of 29th Street between Ninth and Tenth Avenues to non-postal traffic, except during the evening rush period.

Development of the VMF will enable the Postal Service to replace three existing inadequate, scattered vehicle maintenance and storage facilities and, through their consolidation, to improve the efficiency of Manhattan postal vehicle operations. Facilities of the VMF will include service and repair bays, wash racks and paint and body shops, with parking space provided for 918 postal vehicles. Dispatching and fueling operations, offices, and facilities for 300 based employees and 1,200 drivers are also provided.

Approximately 2,200 postal vehicle movements into and out of (total) the VMF are anticipated on an average weekday. The peak period of VMF activity will occur between 5 A.M. and 7 A.M., when approximately 160 to 180 movements per hour of one quarter to two ton vehicles outbound to local postal stations are added to the relatively constant five ton and diesel vehicle flow of 30 to 60 movements per hour.

The housing is to be developed by the City of New York using air rights conveyed by the Postal Service for housing purposes. Present architectural plans call for a total of 864 apartment units in two 27-story towers and two low-rise apartment clusters. The proposed apartments are distributed by size as follows: 30 percent zero bedroom, 30 percent one bedroom, 30 percent two bedroom, and 10 percent three bedroom units.

C. ENVIRONMENTAL IMPACTS AND ADVERSE ENVIRONMENTAL EFFECTS

Street Traffic and Circulation - Postal vehicle travel will increase by approximately 100 vehicle miles per day overall, but five ton and diesel postal

vehicle travel will be reduced by 300 vehicle miles per day. Projected peak postal vehicle operations of the VMF will occur in the early morning while street traffic in the vicinity is light. During the evening rush hour period, VMF operations will be relatively light.

Enforcement of existing parking prohibitions and reduced postal traffic on 31st, 33rd, and 34th Streets should provide sufficient westbound capacity to accommodate the additional non-postal vehicles diverted from 29th Street under conditions comparable to, or improved over, present traffic operations. To avoid any potential confusion for motorists or pedestrians due to changes in normal intersection operations attendant with 29th Street restrictions, signs, barriers, pavement markings and other traffic control devices necessary for the safe use and operation of the street are to be provided.

Thus, no significant impacts or adverse effects on traffic flow or operations are anticipated to occur as a result of the proposed project.

Air Quality - As a result of reduced heavy duty postal vehicle travel, carbon monoxide and hydrocarbon emissions from postal vehicle movements to and from the VMF will be reduced by approximately eight percent over conditions without the VMF.

Street traffic volume and pattern changes attributable to the VMF will have relatively little impact on air quality. For the 15-block primary study area immediately adjacent to the site, no distinguishable change in 1980 A.M. or P.M. peak period emissions were found whether or not the VMF is built.

Enforcement of parking restrictions and reduced postal traffic on 31st, 33rd, and 34th Streets, associated with the transfer of preferential mail processing from GPO Manhattan to Morgan Station, will allow for diversion of non-postal traffic from 29th Street without significant changes in emissions or air quality.

The impact of VMF exhaust venting is not expected to be significant, with maximum concentrations of pollutants in the exhaust occurring at times when background concentrations are low.

Carbon monoxide exposure of the air rights housing and air intakes for the VMF will be within standards, and the ventilation system will have the capability of maintaining better than acceptable air quality within the VMF.

Noise Environment - Traffic changes generated by the proposed VMF will have no significant acoustical impacts. Increases in ambient L_{10} noise levels generally will not exceed 1-3 dBA during most hours. During early morning and late evening periods the L_{10} noise level might increase by approximately 5 dBA for short periods, under present postal vehicle scheduling.

Federal ambient noise standards for the proposed air rights housing are exceeded. In order to attain satisfactory interior noise levels, sound insulating windows and air conditioning are provided for in the design on the Ninth and Tenth Avenue and 29th Street facades of the apartment towers, in addition to a small setback on the VMF roof.

Noise impact during construction phases is not significant, with estimated increases above ambient not exceeding 3.5 dBA. Similarly, truck traffic associated with construction is not expected to significantly raise ambient noise levels. Impacts of a temporary nature associated with construction will be minimized with suitable precautions and abatement procedures.

Urban Form - The combined VMF and housing project represents a compatible transitional use between business and residential sections and will act to stabilize boundaries. No consequential land use changes in the vicinity are expected to occur as a result of VMF project development.

Socio-Economic Conditions - The most significant impact of the project is the positive response to a pressing and obvious need for low- and moderate-income housing in the area.

Construction and in-operation activities represent a potentially minor source of jobs for area residents.

The VMF employment base and residents of the housing portion will provide an expanded local market for retail trade and services.

Development is more beneficial to the community than under current zoning policy for the site. Conversely the proposed project largely may be exempt from normal private property taxation and, thus, have minor fiscal productivity to the City.

The introduction of over 860 new housing units will increase the utilization of local public schools and may create marginal over-capacity conditions at P.S. 33.

Infrastructure - No adverse impact on any existing water supply, sewer, power, gas and steam facilities are expected, nor is any reduction of service to other users expected as a result of project requirements.

Summary Impact Assessment - Many of the potentially adverse impacts of project development are minor and can be prevented or minimized through appropriate precautions, design modifications, construction procedures, and adjustments of operations. The net effect of project development is considered beneficial to both principal parties: the Postal Service and the community.

D. ALTERNATIVES TO PROPOSED ACTION

Alternatives to the proposed action have been considered and the conclusion reached that the proposed action is the most feasible course for the Postal Service to pursue. Moreover, it is the most advantageous to the community in providing a needed potential source of housing.

No Action - Under this alternative, existing postal vehicle maintenance facilities would remain in their scattered and inadequate locations. An opportunity to develop needed housing on the site would be postponed, in the least, if not lost.

Alternative Locations - Expansion of the existing facilities is restricted by an inability to assemble properties. An office-VMF complex proposed on a nearby 29th Street site by private sponsors would be more costly and would not provide the opportunity to develop housing.

An alternative advocated by various community groups would relocate the VMF to a nearby site diagonally opposite Morgan Station to the northwest, leaving the housing on grade at the proposed VMF site. The alternative VMF site offers no significant environmental advantages to the existing community and is less desirable operationally to the Postal Service. Provision of low- and moderate-income housing without benefit of the cost savings associated with the use of air-rights would be economically prohibitive. On grade construction opposite Morgan Station loading docks would be visually undesirable and would increase exposure to noise levels generated by traffic along the avenues.

Scattered site facilities, while reducing travel for light duty vehicles, would increase the needed fleet size and space needs for parking, with an attendant reduction in vehicle maintenance efficiency.

Alternative Modes of Mail Goods Movements - The feasibility of alternative means of transporting mail have in the past and continue to be a subject of extensive study and experimentation by the Postal Service, including the use of rail transit, pneumatic tubes, electronic transmission and alternate vehicle power systems.

In general, use of alternative modes of current or near future technology have limited application to mail distribution provided by VMF vehicles or have access, capacity, scheduling and security problems.

E. COMMENTS REQUESTED AND RECEIVED:

Requested	Received	Federal
X	X	Environmental Protection Agency
X	X	Department of Interior
X	X	Department of Health, Education, and Welfare
X	X	Department of Housing and Urban Development
X	X	Office of Economic Opportunity
X	X	Department of Transportation, Assistant Secretary for Systems Development and Technology
		State of New York
X		Department of Environmental Conservation
		Metropolitan
X		Tri-State Regional Planning Commission
		City of New York
X		Office of the Mayor
X		Office of the Manhattan Borough President
X		Department of City Planning: Manhattan Borough Planning Office
X		Economic Development Administration
X		Board of Education
X		Environmental Protection Administration: Department of Air Resources; Department of Water Resources; Department of Sanitation
X	X	Fire Department
X	X	Health Department, Bureau of Sanitary Engineering
X		Health Services Administration: Lower West Side District Health Center
X		Housing Authority
X	X	Housing and Development Administration

Requested	Received	
X	X	Parks, Recreation, and Cultural Affairs Administration: Department of Recreation; Landmarks Preservation Commission
X		Police Department: Tenth Precint
X	X	Transportation Administration: Department of Traffic
		Community Agenices and Organizations
X		Community Planning Board No. 4
X		Chelsea Action Center
X		Chelsea Coalition
	X	Council of Chelsea Block Associations
X	X	Hudson Guild
	X	Veterans Administration Local 1151
	X	West Twentieth Street Block Association

F. REVISED DRAFT STATEMENT SENT TO THE COUNCIL ON ENVIRONMENTAL QUALITY ON

14 January 1974.
(date)

G. FINAL STATEMENT SENT TO THE COUNCIL ON ENVIRONMENTAL QUALITY ON

______________________.
(date)

NOTE: Additions, modifications and clarifications to the Revised Draft Environmental Statement are included in Section VIII and related Attachments A and B. Sections I through VII and the Technical Appendices are included in this Final Statement without modification from the Revised Draft Statement.

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SECTION I. PROJECT DESCRIPTION*

A. SITE LOCATION AND PROPOSED DEVELOPMENT

Development of a major U.S. Postal Service vehicle maintenance facility (VMF) and combined multi-story housing project in the lower West Side of the Borough of Manhattan, New York City, is the subject of this Statement. The proposed project will occupy the entire city block adjacent to the Morgan Station mail processing center, shown on Figure I-1.

The site is situated on the northern extremity of Manhattan's Chelsea residential district, with Chelsea Park and the Penn Station South housing project located immediately to the south and east. It was acquired and cleared in the late 1960's, displacing 200-250 tenement housing units, assorted small manufacturing activities and garages. At the present time, the 200 x 800-foot site is fenced and used for parking postal trucks, trailer units, and employee vehicles.

U.S. Public Law 92-313 authorizes the conveyance of air rights over the proposed VMF to the City of New York for housing purposes, provided that the Postal Service be given exclusive use of West 29th Street between Ninth and Tenth Avenues for postal operations. The Postal Service has agreed, however, to relinquish such exclusive use during the weekday evening rush hour period to alleviate otherwise anticipated traffic problems.

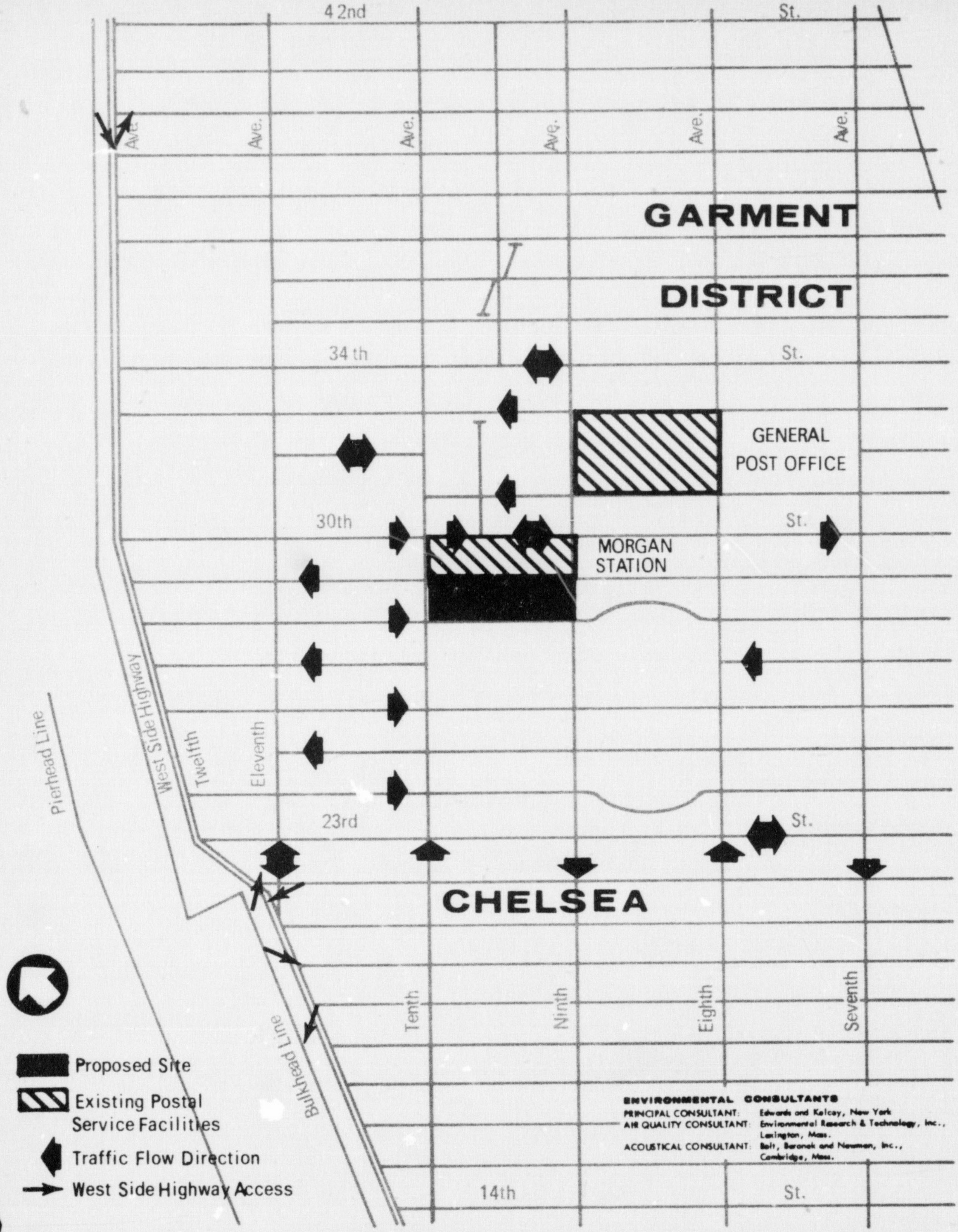
Figures I-2 and I-3 illustrate the concept for the proposed project prepared by the project architect-engineer.

A.1 VEHICLE MAINTENANCE FACILITY (VMF)

The VMF portion of the project will contain approximately 800,000 square feet of interior space. The structure is of split-level design to conform with the natural slope of the site, with two levels below grade, three and four levels above grade on the Ninth and Tenth Avenue ends, respectively. Parking is to be provided for 771 trucks, 93 tractors, 24 trailers, and 30 official-use autos. Maintenance facilities will include service and repair bays, wash racks, and paint and body shop. Dispatching and fueling operations, offices, and facilities for 300 based employees and 1,200 drivers are provided as well.

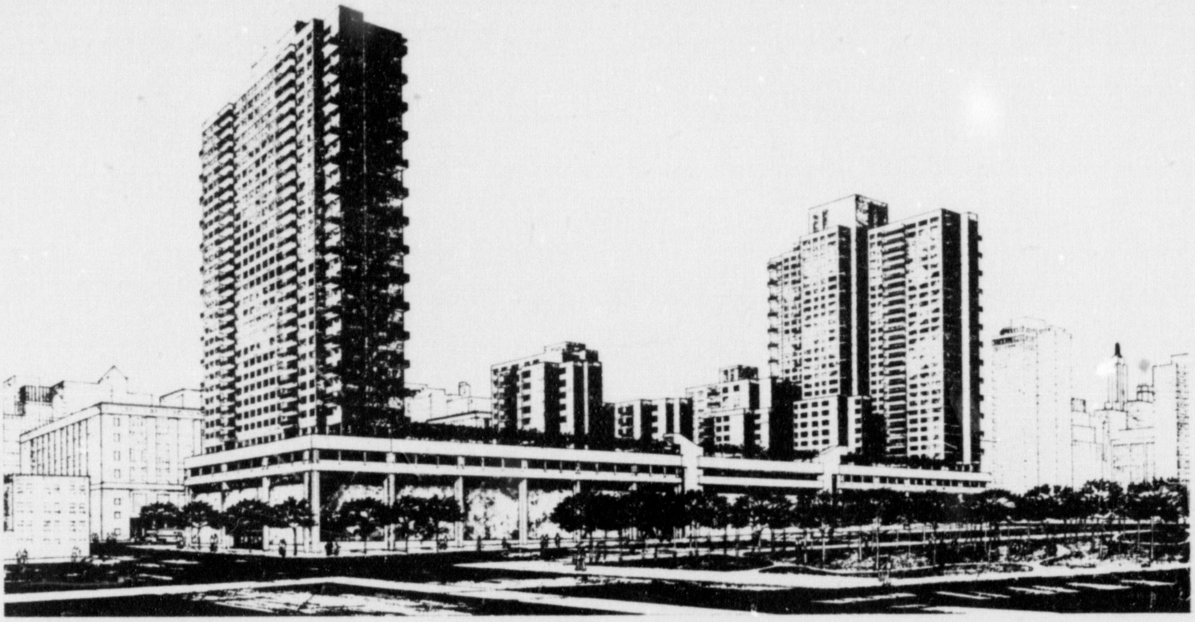
VMF vehicular ingress and egress will be provided only on the 29th Street side facing Morgan Station to minimize postal vehicle impact on the community and interference with flow on adjacent north-south Ninth and Tenth Avenue traffic arteries. The proposed closure of

* This report was prepared for the Department of the Army, New York District Corps of Engineers, under contract DACW-51-73-C-9045, by Edwards and Kelcey, New York, N.Y. as principal consultant, with Environmental Research and Technology, Inc., Lexington, Mass. as air quality consultant, and Bolt, Beranek and Newman, Inc., Cambridge, Mass. as acoustical consultant.

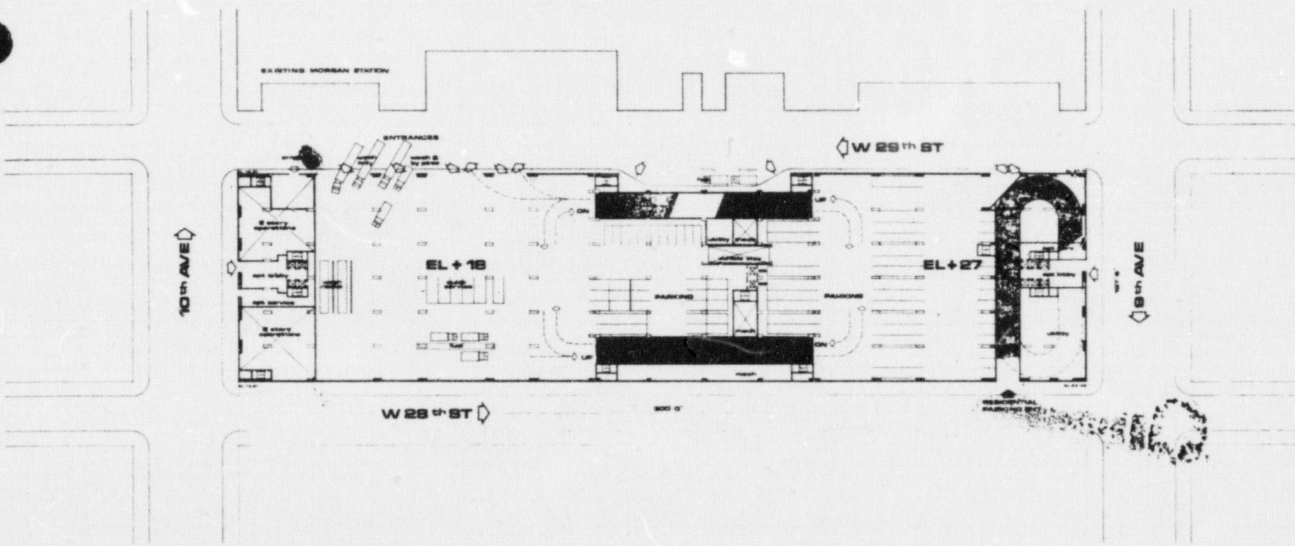


PROPOSED VMF PROJECT LOCATION

Figure I–1



PERSPECTIVE



ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

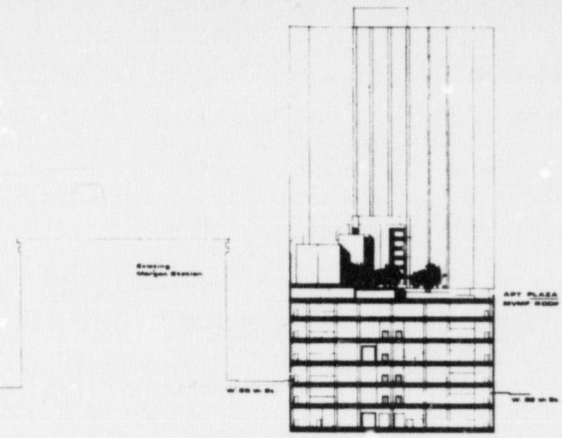
GROUND LEVEL PLAN

PROPOSED VMF PERSPECTIVE AND GROUND LEVEL PLAN

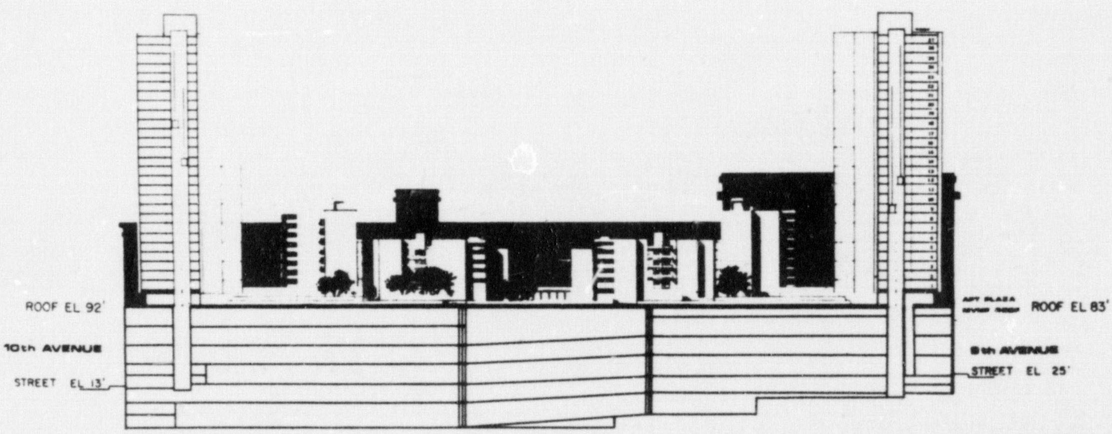
NOTE: Concept plans; details are subject to change.

SOURCE: Emery Roth and Sons, Project Architect/Engineer.

Figure I-2



TRANSVERSE SECTION



LONGITUDINAL SECTION

0 80 160
SCALE

ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

PROPOSED VMF SECTIONS

NOTE: Concept plans, details are subject to change.

SOURCE: Emery Roth and Sons, Project Architect/Engineer.

Figure I-3

29th Street to non-postal traffic accompanies this objective of concentrating VMF vehicular access. In addition, Morgan Station truck loading docks face 29th Street and will require use of the street for maneuvering. Public use of the street combined with VMF and Morgan Station movements would subject both postal and non-postal traffic to difficult conditions and would impair the operational efficiency and security desired by the Postal Service.

Twenty-Ninth Street does, however, provide a major P.M. westbound connection to northbound Tenth Avenue and the Lincoln Tunnel entrance at 30th Street. For this reason, 29th Street is scheduled to remain open to two lanes of non-postal vehicular traffic during the weekday evening rush hour period, from 4:30 to 6:30 P.M. At all other times, public use would be restricted.

A.2 HOUSING PROJECT

Figures I-2 and I-3 illustrate the proposed structurally integrated VMF-housing project, in which the housing project would be developed using air rights space donated to the City. Only differential foundation and utility costs, estimated at $2 million, would be assessed against the housing project. Under normal conditions, site acquisition for housing construction on grade, together with foundation and utility costs might run to $12 million. Thus, use of air rights space represents a saving in the order of $10 million, making it feasible to provide housing at lower costs than comparable facilities.

Present architectural plans provide for a total of 864 apartment units in two 27-story towers and two low-rise apartment clusters. The proposed apartments are distributed by size, as follows: 30 percent zero-bedroom, 30 percent one-bedroom, 30 percent two-bedroom, and 10 percent three-bedroom units.

Resident parking for approximately 160 cars is proposed to occupy two half-story levels below grade at the Ninth Avenue end of the VMF. The VMF roof will serve as a recreation area and plaza level for the apartments and associated community uses. This plaza level ranges from approximately 60 feet above street level at Ninth Avenue to 80 feet above street level at Tenth Avenue.

Elevator entrance lobbies for the housing units will be located on Ninth and Tenth Avenues, with an additional "sky lobby" at the plaza level connected by an enclosed pedestrian passage to lobbies of the apartment clusters. Vehicular access to the resident parking area will be from West 28th Street near Ninth Avenue.

B. OBJECTIVES OF PROPOSED ACTION

Development of the proposed VMF will enable the Postal Service to replace three existing inadequate, scattered vehicle maintenance and parking facilities and, through their consolidation, to improve substantially the efficiency of Manhattan postal vehicle operations.

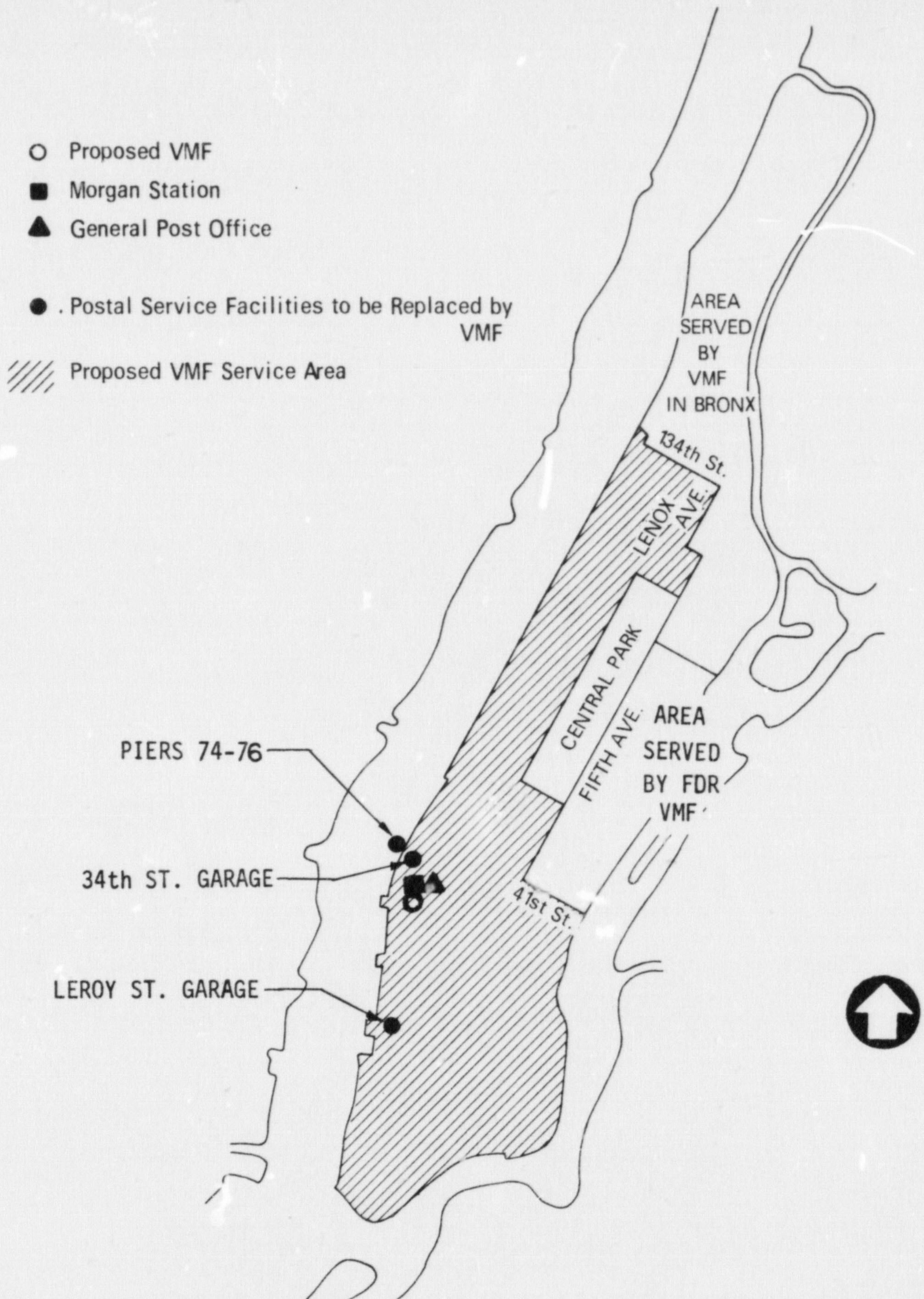
The proposed VMF is part of an overall plan for reorganization of Postal Service facilities to improve service in the New York metropolitan region. Key features of the plan include the already-implemented relocation of Morgan Station bulk mail processing operations to new postal facilities in Hudson County, New Jersey, and the conversion of Morgan Station to the preferential (first-class) mail center (PMC) for the area, replacing G.P.O. Manhattan in this capacity. Morgan Station was heavily damaged by fire in 1967, prior to which it served as a center for bulk mail and some preferential mail processing. Refurbishing and refitting operations necessary to equip Morgan Station as the PMC for the area are presently in progress. Bulk mail operations currently remaining at the G.P.O. also will be transferred to New Jersey, the G.P.O. becoming a local branch post office.

The proposed VMF will be developed to replace two leased maintenance facilities at Leroy Street in the West Village and at 34th Street b - tween Eleventh and Twelfth Avenues. Furthermore, it will consolidate the parking of vehicles now located at (1) these two maintenance facilities, (2) the proposed site, (3) leased space at Piers 74-76, and (4) side streets surrounding the G.P.O. An estimated 175 postal vehicles must park on side streets on week nights (300 on Sunday nights) due to the inadequacy of off-street facilities, causing congestion and being subject to collision and vandalism. Figure I-4 shows this consolidation of maintenance and parking facilities, including the area of Manhattan served by postal vehicles to be reassigned to the proposed VMF.

Ideally, the VMF should be located adjacent to the Morgan Station PMC to minimize traffic movements and lost time between the two facilities.

C. PROPOSED VMF TRAFFIC OPERATIONS

Maintenance and storage locations to be replaced by the proposed VMF presently accommodate 767 postal vehicles, of which 664 are gasoline-powered and 103 are diesel powered (tractor) units. Of the 664 gas-powered vehicles, 502 (or 76 percent) are light-duty units having fuel combustion emissions and noise characteristics similar to those of passenger cars.



ENVIRONMENTAL CONSULTANTS

PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
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VEHICLE MAINTENANCE FACILITY CONSOLIDATION PLAN

Figure I–4

Approximately 2,200 postal vehicle movements into and out of (total) the VMF are anticipated on an average weekday. Proposed scheduling of these movements by hour of day are summarized in Table I-1, along with anticipated Morgan Station PMC postal vehicle traffic. A detailed breakdown and description of these movements by vehicle type and travel direction is included in Table B-3 of Appendix B.

The proposed schedule reflects a rescheduling, as compared to current postal vehicle operations, of approximately 110 movements per hour from the evening rush (4 P.M.-7 P.M.) primarily to late evening (9 P.M.-12 A.M.) hours. This average 55 percent reduction in postal movements during the evening rush hours is necessary to allow non-postal vehicle use of 29th Street and is consistent with "after-hours" truck delivery and goods movement strategies of the New York City Air Quality Implementation Plan.

Local postal zones to be served by the VMF cover the west side of Manhattan south of 134th Street and the east side of Manhattan south of 40th Street. Based on vehicle assignments to each of the postal zones served, approximately one-half of the daily movements will be to locations north of the VMF, outbound via Tenth Avenue and inbound via Ninth Avenue. The remaining movements will be to locations south of the site, outbound via Ninth Avenue and inbound via Tenth Avenue. With two-directional flow for postal vehicles on 29th Street between Ninth and Tenth Avenues, the use of other streets in the study area for postal vehicle access, except during evening rush hours, is not anticipated.

Table I-1

ANTICIPATED POSTAL VEHICLE MOVEMENTS—

AVERAGE WEEKDAY

Time	To/From (Total) City Streets VMF Traffic	To/From (Total) City Streets PMC Traffic	Between VMF & PMC Only
12-1 A.M.	44	43	16
1-2	26	35	8
2-3	28	37	6
3-4	30	33	16
4-5	71	52	12
5-6	183	54	32
6-7	201	37	22
7-8	150	40	36
8-9	24	31	28
9-10	22	35	16
10-11	26	37	12
11-12 P.M.	28	37	10
12-1	32	37	14
1-2	40	32	20
2-3	112	32	20
3-4	98	37	36
4-5	68	18	2
5-6	68	21	2
6-7	68	22	2
7-8	91	53	28
8-9	116	59	16
9-10	97	68	34
10-11	69	86	34
11-12 A.M.	68	87	32
TOTALS	1,760	1,023	454

SECTION II. ENVIRONMENTAL SETTING WITHOUT THE PROJECT

Existing physical and social environments in the general vicinity of the project site and future conditions which might be anticipated without the project are described in this section as baselines for identification and estimation of potential impacts of project development. As appropriate, future conditions herein are related to the year 1980, selected as a realistic in-operation (post-construction) date for the proposed project.

A. SITE CONDITIONS

The 200 x 800-foot site is presently a graded and fenced, vacant lot used for parking postal trucks, trailer units, and employee vehicles. The existing ground surface rises gradually from elevation +14 at Tenth Avenue to elevation +27 at Ninth Avenue, a rise of 13 feet at an average grade of approximately 1-1/2 percent.

Subsurface conditions at the site, based on available boring data, indicate a varying depth overburden lying on a bedrock of Manhattan shist. The overburden varies in depth from approximately 12 feet (bedrock elevation +15) near Ninth Avenue to approximately 50 feet (bedrock elevation -35) near Tenth Avenue. The overburden generally consists of three major stata: (1) man-made fill composed of varying proportions of sands, silts, and gravel; (2) sands and silts of glacio-fluvial origin; and (3) glaciated silt deposits.*

The Manhattan shist bedrock is Class I - hard sound rock, or Class II - medium sound rock with its upper surface partially weathered. Ground water at the site is generally at an elevation of +3 (11 feet below grade at Tenth Avenue), except in the vicinity of Ninth Avenue where the bedrock surface is higher.*

B. STREET TRAFFIC AND CIRCULATION

B.1 PRESENT CONDITIONS

B.1.(a) Traffic Circulation

Traffic circulation in the VMF site vicinity consists primarily of two basic movements:

- "Through" traffic on the north-south avenues,

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*Manhattan Vehicle Maintenance Facility, A Feasibility Study for the U.S. Postal Service, Ames Associates and McFarland-Johnson-Gibbons, March, 1972.

- Circulation between the avenues and the industrial districts flanking the east and west sides of the area.

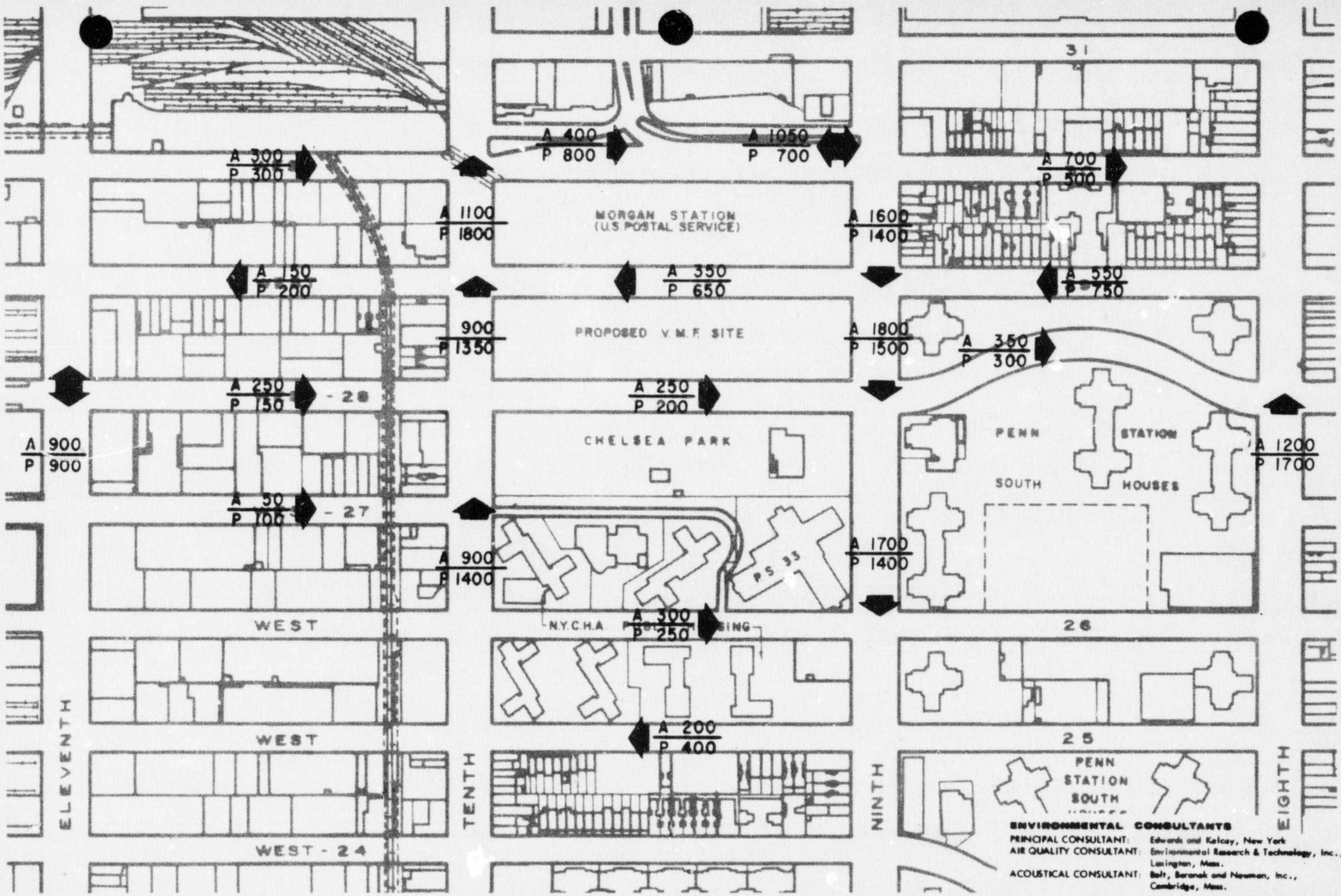
South and eastbound movements tend generally to peak during morning hours; north and westbound movements generally peak during the evening rush hours. These flow characteristics are reflected in Figure II-1, which illustrates average weekday A.M. and P.M. peak hour traffic volumes by roadway segment.

Each of the 60-70 foot wide avenues accommodates four lanes of moving traffic. Curb lanes on each side generally are occupied by parked, stopped, or standing vehicles during most periods of the day. The nearest major east-west arterials are 23rd Street and 34th Street, where adjacent commercial development restricts capacity and efficient circulation, particularly during the peak afternoon traffic hours. Between these arterials, the streets are generally 32-36 feet wide, with traffic generally restricted to one lane due to parked or standing vehicles occupying the curb lanes. Of the westbound streets, 27th is partially vacated and a section of 25th is officially closed between 8 A.M. and 1 P.M. as a "play street" for adjacent residential development; 31st and 33rd Streets traverse a relatively heavily traveled commercial area. On 29th Street between Eighth and Tenth Avenues, by contrast, street widening and compliance with no-parking regulations generally allow for two to three lanes of traffic operation, pending renewed postal operations at Morgan Station. Thirtieth Street, which carries traffic to and from the Lincoln Tunnel access road, is the most heavily traveled eastbound street in the immediate area of the project site.

In order to assess proposed circulation changes at the site, peak period turning movements were investigated at the adjacent intersections. During the morning peak, as shown in Figure II-2, 29th Street feeds approximately equal volumes into Ninth and Tenth Avenues. During the evening peak, movements to northbound Tenth Avenue are clearly predominant. Roughly 20 percent of 29th Street traffic is bound west of Tenth Avenue during both periods. Traffic patterns on 28th Street remain relatively constant, and comparatively light, throughout the day.

B.1.(b) <u>Hourly Variation</u>

The directional peaking of traffic is clearly shown in Figure II-3, which illustrates traffic variation by hour of day for the streets adjacent to the proposed site. Ninth Avenue and 28th Street peak generally from 8-10 A.M. Tenth Avenue and 29th Street volumes rise slowly throughout the day to a high from 4-6 P.M. While most traffic related analyses were focused on these peak periods, the

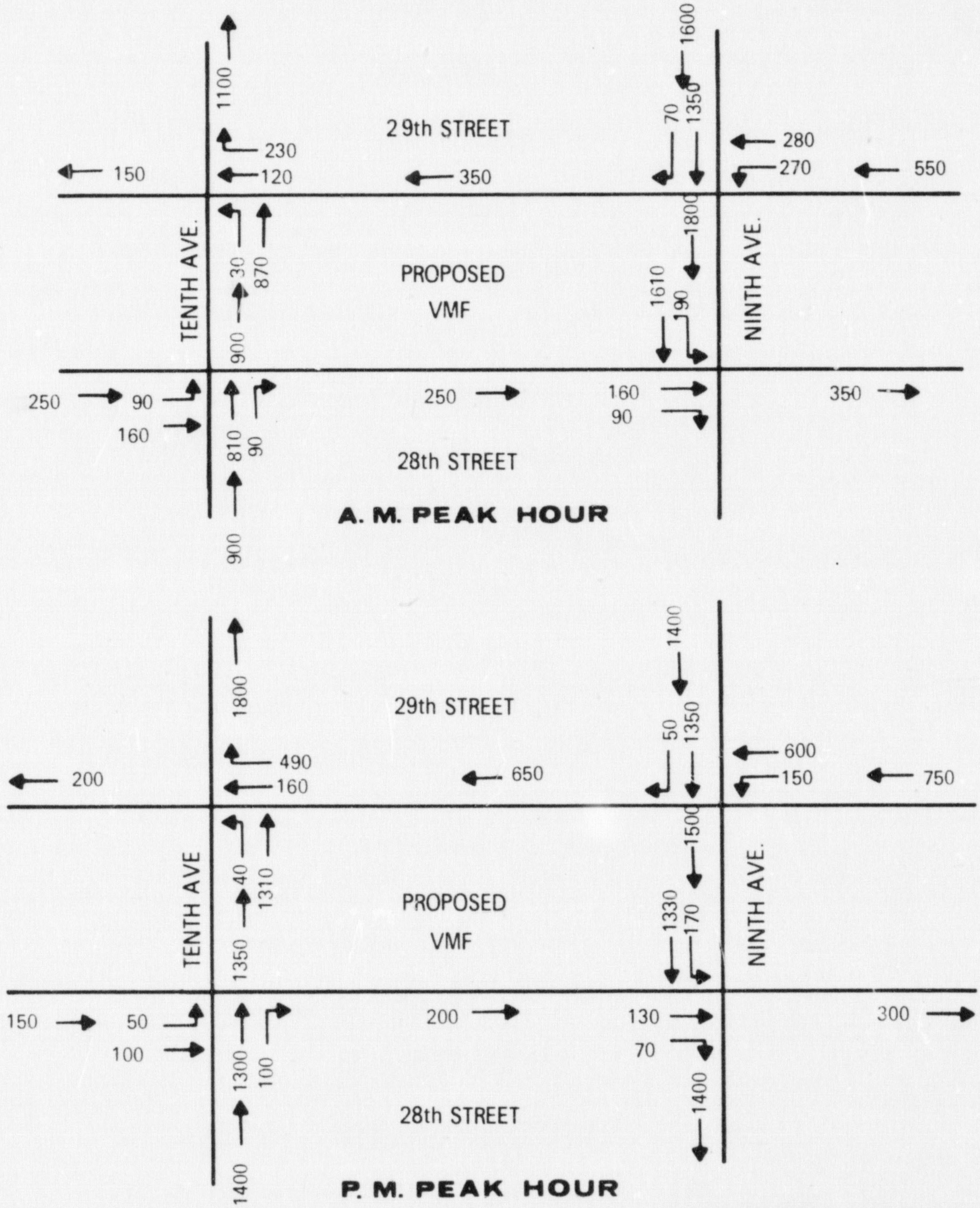


LEGEND
◆ DIRECTION OF TRAVEL

A 000 A. M. PEAK HOUR EXISTING
P 000 P. M. PEAK HOUR EXISTING

AVERAGE WEEKDAY TRAFFIC VOLUMES AM & PM PEAK HOURS • EXISTING

FIGURE II-1



ENVIRONMENTAL CONSULTANTS
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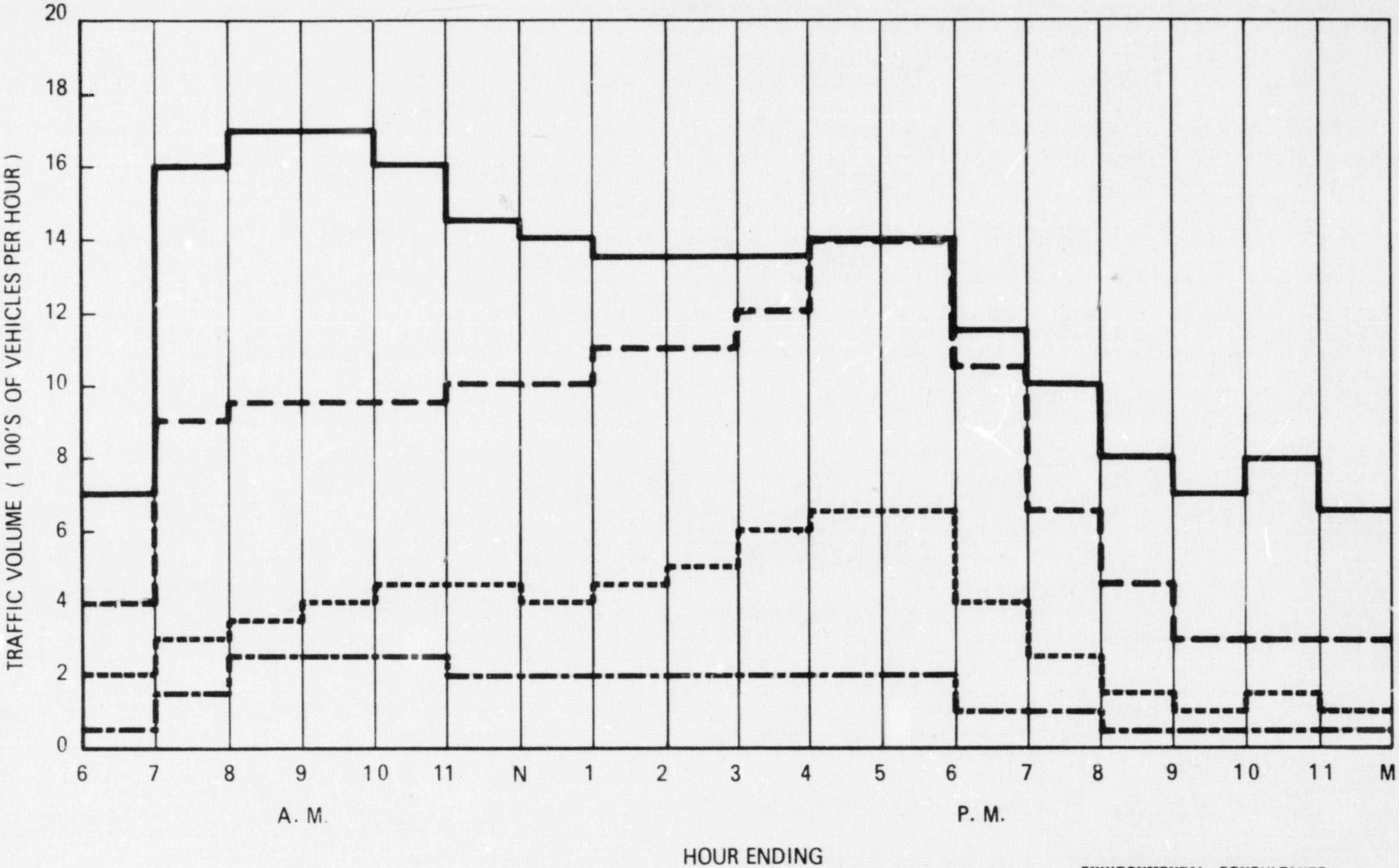
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

TRAFFIC CIRCULATION ADJACENT TO PROPOSED SITE

(average weekday traffic)

Figure II-2



LEGEND

Ninth Avenue (Between 25th & 26th Streets)
Tenth Avenue (Between 25th & 26th Streets)
29th Street (Between Ninth & Tenth Aves.)
28th Street (Between Ninth & Tenth Aves.)

ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
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WEEKDAY AVERAGE HOURLY TRAFFIC VOLUMES

Figure II–3

variations illustrated in Figure II-3 provide a relative comparison to conditions found during other periods of the day, including off-peak periods critical for noise analysis. Weekend flows are generally 35 to 40 percent lower than comparable weekday volumes.

B.1.(c) Composition

Commercial (truck and bus) traffic varies by street and time of day. With truck deliveries normally peaking during mid-morning hours, commercial vehicles constitute a higher proportion of the A.M. peak period traffic mix than during the P.M. peak period, as shown in Table II-1. On Tenth Avenue, where northbound auto movements in the morning are light, commercial traffic comprises nearly half of the total flow.

Table II-1

PERCENT COMMERCIAL TRAFFIC

	A.M. Peak Hour		P.M. Peak Hour	
	Gas	Diesel	Gas	Diesel
Eighth Avenue	15	2	10	2
Ninth Avenue	25	3	20	3
Tenth Avenue	40	6	20	5
Eleventh Avenue	30	5	20	4
29th and 30th Streets	20-45	1-3	15-25	2-5
25th, 26th, 27th, and 28th Streets	15-35	1-2	15-30	1-5

As shown in Table II-1, commercial traffic on the various east-west streets ranges from approximately 15 to 50 percent of their total traffic, with the percentage of trucks generally increasing as the total volume decreases from east to west in the study area. Diesel and gas-powered vehicles were identified separately in order to account for their differential contribution to noise and air pollution emissions.

B.2 ANTICIPATED FUTURE "BACKGROUND" CONDITIONS

In order to provide a future year (1980) traffic base against which to assess anticipated changes in traffic due to the proposed project: (1) recent year trends and Tri-State Planning Commission projections were investigated; and (2) discussions were held with both City traffic officials and representatives of proposed nearby development projects. Individual descriptions of these projects and their anticipated effects on traffic in the area of the VMF are included in Appendix B.

In general, traffic conditions in the area have remained relatively stable during recent years. The combined effect of proposed nearby development projects and of traffic control and transportation improvement strategies of the New York City Air Quality Implementation Plan should somewhat reduce area traffic volumes in the years ahead. Westside Highway improvements, in particular, could substantially reduce north-south traffic in the Eighth to Eleventh Avenue Corridor. However, any conclusion at this time as to the actual magnitude of reduction either overall or for any specific street segment was not considered to be appropriate. For purposes of analysis, therefore, future traffic without the proposed VMF project was considered to be equal to present traffic. Future volumes both with and without the VMF thus represent a conservative or worst case approach.

C. AIR QUALITY

C.1 PRESENT AIR QUALITY

Present air quality in the vicinity of the project site has been estimated from available data from the New York City Department of Air Resources (NYCDAR), including the 1972 Air Quality Implementation Plan control strategy for carbon monoxide (CO), hydrocarbons (HC), and nitrogen oxides (NO_x).

Although existing air quality data are relatively scarce for these contaminants, available data indicate that federal standards outlined in Table II-2 are occasionally exceeded for all three pollutants in midtown Manhattan.

Table II-2

NATIONAL AMBIENT AIR QUALITY STANDARDS
AND PRESENT (1972) AMBIENT CONDITIONS

Pollutant	Standard: Time Frame	Standard: Quantity (ppm)	Present Peak Ambient (ppm)
CO	One-hour maximum 8-hour maximum	35 (primary std.) 9 (secondary std.)	65
NO_2	Annual average	0.05	0.14
Hydrocarbons (less methane)	Three-hour average, 6-9 A.M.	0.24	1.88

Values representing present peak ambient levels in midtown Manhattan were derived from data reported in the Implementation Plan and adjustment factors described in Appendix C (Section C.2). These values are 65 ppm of CO (one-hour peak), almost twice the Federal standard, 1.88 ppm for non-methane hydrocarbons, and 0.14 ppm for nitrogen dioxide.

A supplemental analysis of carbon monoxide concentrations in midtown Manhattan was made of July, 1972 data from a midtown sampling station to determine hourly variations.* Results are shown in Figure II-4 as concentrations of CO by weekday hour averaged over the month of July.

The 8-9 period is shown to have the highest average hourly concentration (19.85 ppm). During the 5-8 A.M. time period when VMF traffic operations will be maximum, average hourly readings are 8.8 ppm from 5-6 A.M., 12.8 ppm from 6-7 A.M., and 17.8 ppm from 7-8 A.M. Maximum one-hour values observed during the month were 15 ppm, 17 ppm and 29 ppm, respectively, for the three one-hour periods.

In summary, analysis of July data to supplement air quality values reported in the Implementation Plan shows that: (1) air quality readings during the 5-7 A.M. peak period for VMF activity are about 50 percent of the A.M. peak air quality readings; (2) P.M. readings are about 80 percent of the A.M. readings; and (3) CO concentrations build to a peak level by 7-8 A.M. and remain near those levels until late at night. Air quality readings arising from vehicular emissions are not found to exhibit strong diurnal variations as to the traffic related emissions which influence these air quality levels.

Similar patterns for hydrocarbons and nitrogen oxides would be expected although these would be somewhat altered by the influence of non-transportation sources. This is because motor vehicles contribute over 95 percent of CO emissions, 77 percent of hydrocarbon emissions, and only 33 percent of NO_X emissions, according to NYCDAR.

Carbon monoxide and hydrocarbon peak values cited in the Implementation Plan were considered to be representative of A.M. peak-hour conditions in the vicinity of the VMF. In the case of nitrogen oxides, the concern is with annual average values as expressed in the standards. Again, the values expressed in the Implementation Plan were considered to be applicable to the project area.

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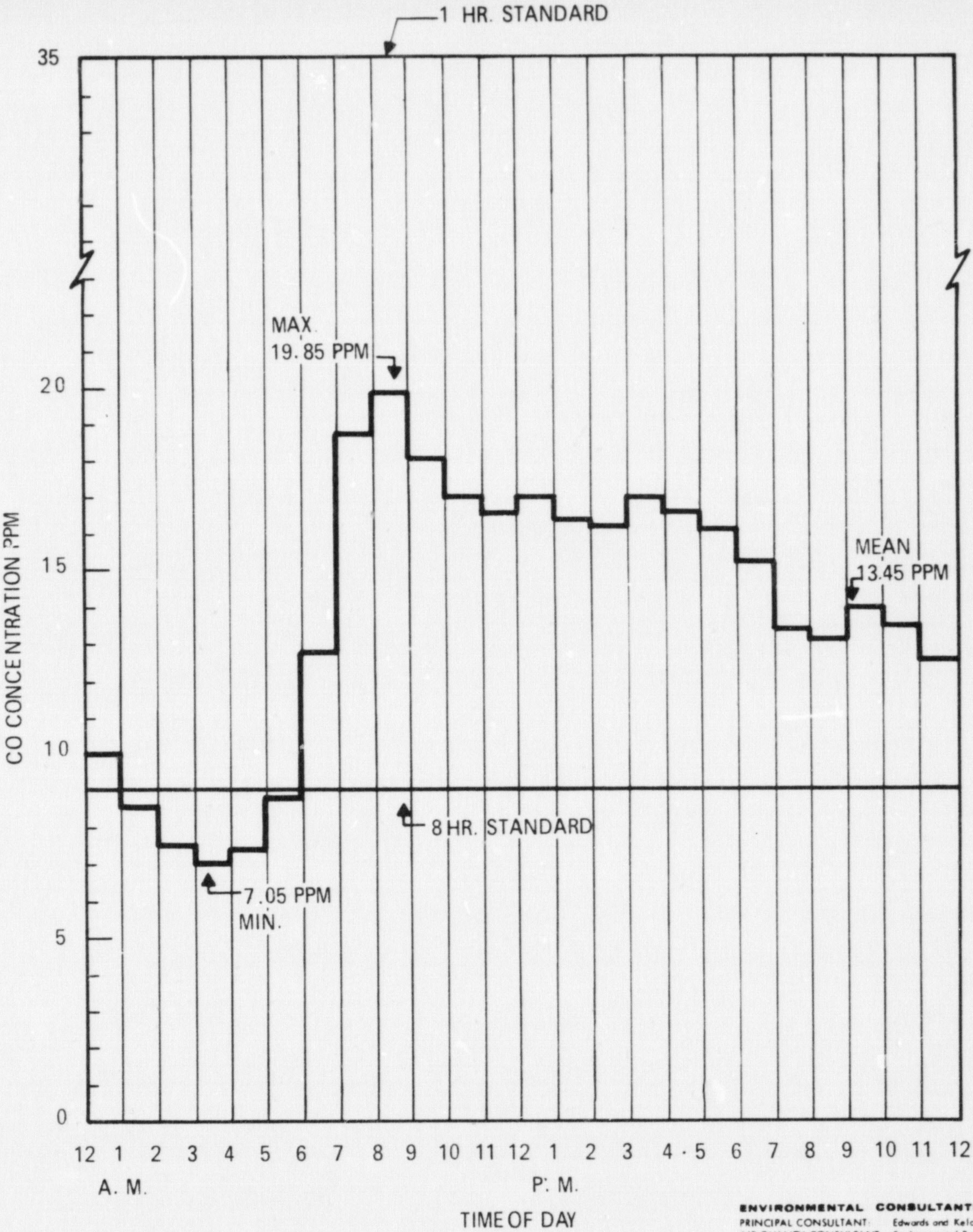
*July data was selected because of its greater completeness. Transportation related pollutant levels do not generally have a large monthly or seasonal variation.



ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

1972 AMBIENT CO CONCENTRATION* MIDTOWN MANHATTAN

* *Based on hourly concentration averages measured from 110 E 45th Street. Figures are based on data measured on all weekdays for the month of July 1972.*

Figure II–4

C.2 BACKGROUND AIR QUALITY FOR 1980

The determination of background air quality values for 1980 without the vehicle maintenance facility is based upon the New York City Implementation Plan and the roll-back procedures utilized in that Plan for each pollutant. The major change in emissions from 1972 to 1976 (as shown in the Implementation Plan and extrapolated to 1980) will result from Federal Emission Standards for new motor vehicles.

It is anticipated that carbon monoxide concentrations will be below the Federal eight-hour standard by 1976 with the exception of the one air quality station representative of the worst traffic conditions in the city. The Implementation Plan, however, goes on to state that the further reductions in emission factors after 1976 should bring all locations in New York City within the 9 ppm eight-hour standard by 1980.

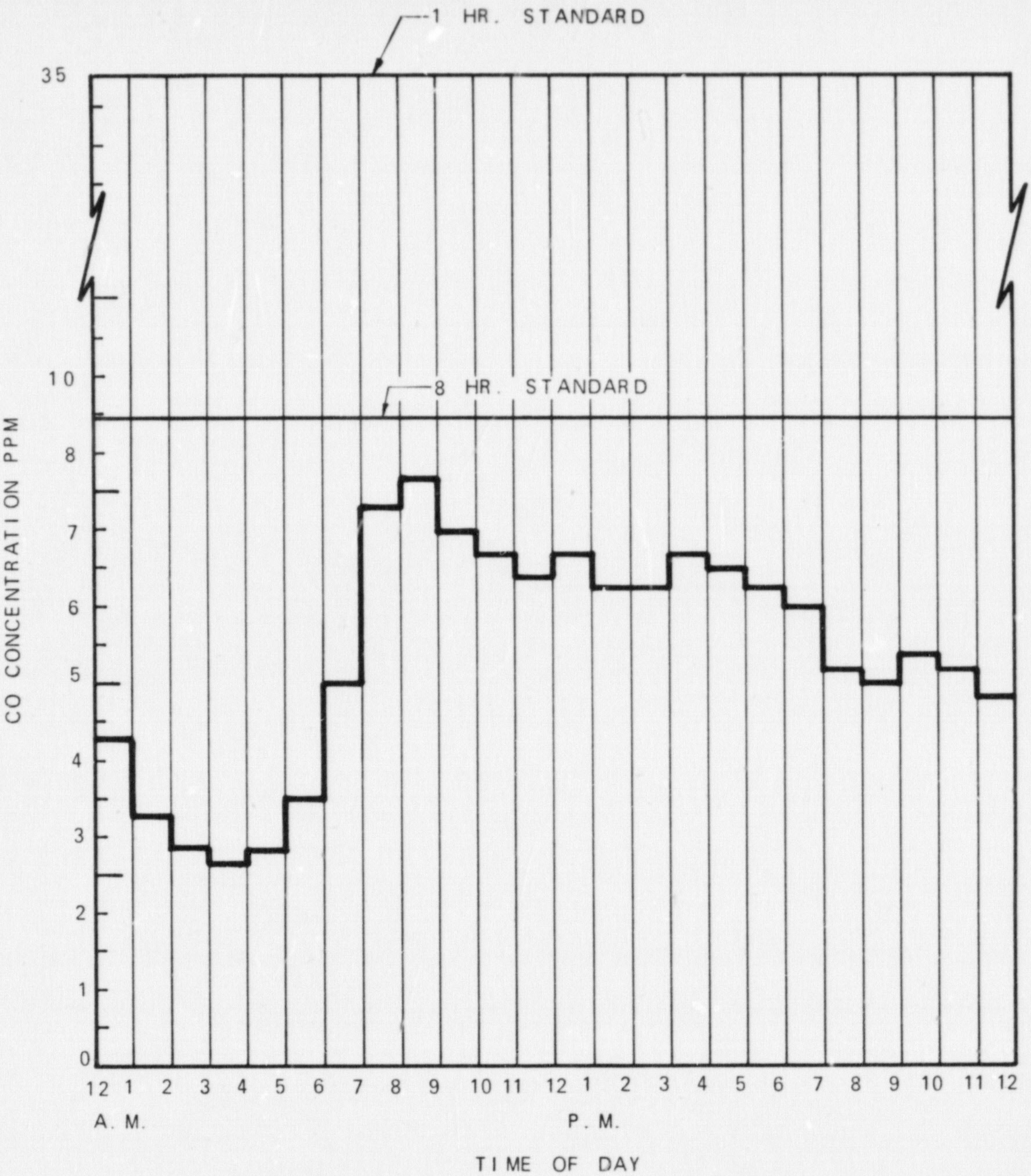
Implementation Plan estimates were supplemented by looking at the projected emissions for a five-by-three block study area for 1980 without the VMF.* Reductions were found in calculated carbon monoxide emissions for the A.M. peak period of 61 percent and 66 percent for the P.M. peak from 1972 to 1980. If these reductions are applied to the 65 ppm 1972 one-hour maximum value for CO, shown in the Implementation Plan, a maximum peak hour CO value of 25 ppm for 1970 in the project area would result. Applied to July 1972 values, an average one-hour reading for the A.M. peak of approximately 8 ppm, and a maximum one-hour reading of under 15 ppm would be found. P.M. readings would be correspondingly reduced.

Since the monitor at the 45th Street site records traffic-generated carbon monoxide concentrations as well as background, it would be extremely conservative to assume that 25 ppm or 15 ppm would be background CO levels for 1980. A reasonable, yet also conservative procedure is to reduce the July 1972 average hourly concentrations by 61 percent. Figure II-5 depicts the resulting diurnal variation of projected CO background for 1980.

The analysis of hydrocarbon levels must recognize two factors: (1) their primary effect is on veget[illegible]on (not a factor in this area), and (2) the concern is not with the direct effect of HC levels but with their indirect effect upon photochemical oxidant levels. As stated in the Federal Register**, the hydrocarbon standard is to be used as a guideline to achieve the health-related

*The 15-block area bounded by Eighth and Eleventh Avenues, east and west, and by 30th and 25th Streets, north and south.

**Federal Register, Volume 36, N. 84, April 30, 1971.



ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

1980 PROJECTED BACKGROUND CO CONCENTRATION MIDTOWN MANHATTAN

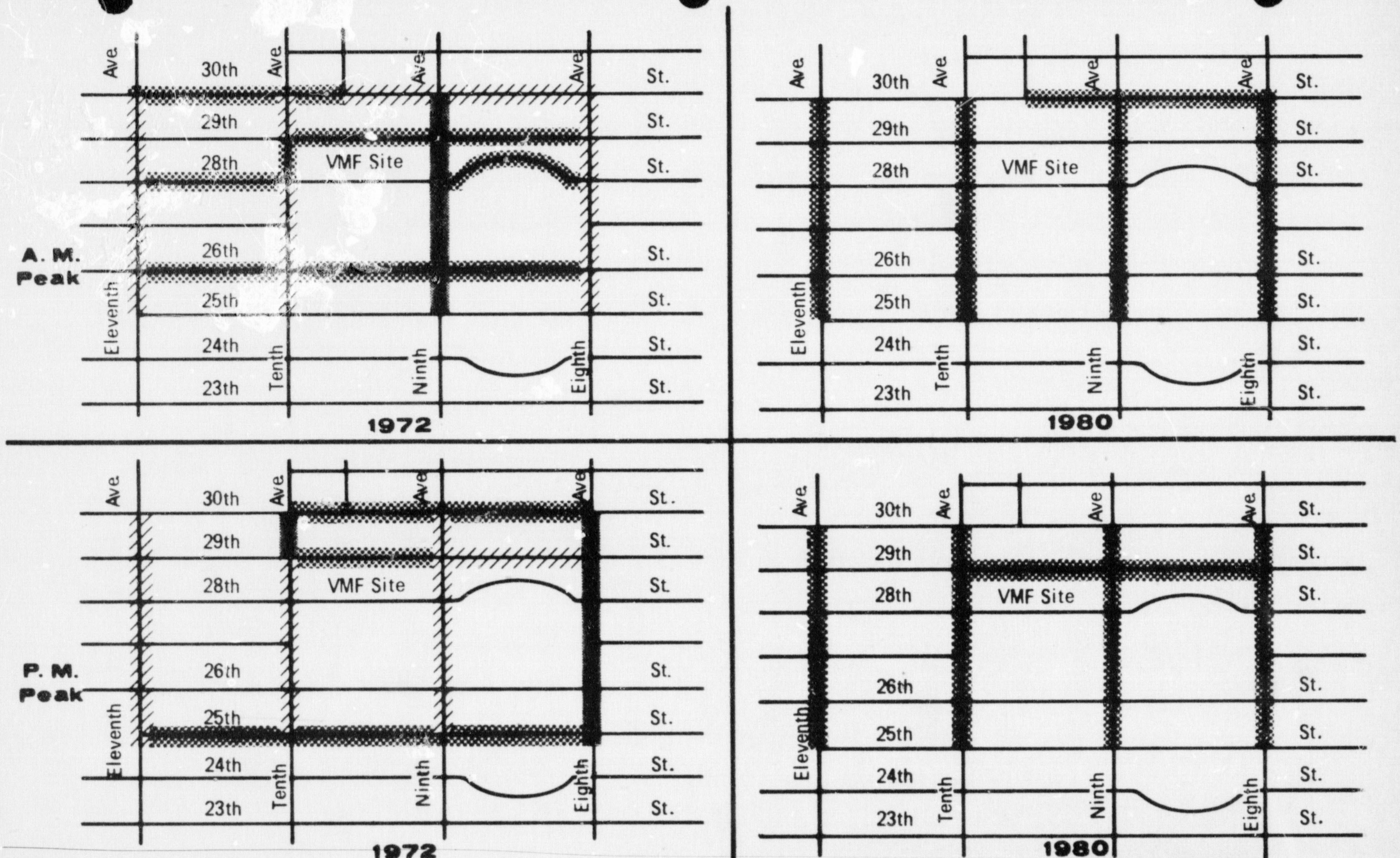
Figure II — 5

Federal oxidant standard. Although the complex role of hydrocarbons in the production of photochemical oxidants is not completely understood, it is believed by EPA that the control of non-methane hydrocarbon levels below 0.24 ppm during the 6-9 A.M. morning rush hours will prevent oxidant levels from exceeding a one-hour Federal standard of 0.08 ppm. Since the production of high oxidant levels in the atmosphere requires high hydrocarbon and nitrogen oxide concentrations over a large area, they are commonly found to exceed standards in urban areas where sources of the precursors, hydrocarbons and nitrogen oxides, are numerous and distributed over a large area. Localized high non-methane hydrocarbon concentrations are not important per se, but are important in that they contribute to regional oxidant levels.

Such an indirect assessment of hydrocarbons relative to oxidant levels was adopted by New York State in its Implementation Plan. Their calculation showed that a 60 percent reduction in hydrocarbon emissions would be necessary by 1976 to meet the oxidant standards, whereas a 33-40 percent reduction could be expected. The Implementation Plan strategies predicted at least a 50 percent control of non-motor vehicle hydrocarbon emission was attainable in the period from 1975 to 1980. Furthermore, calculations of hydrocarbon emissions for 1980 in the study area, relative to 1972, show a 50 percent reduction for the A.M. peak and a 55 percent reduction for the P.M. peak. These differences are the results of changes in vehicle mix for cars, trucks and diesel vehicles, as well as assumed free flowing and congested speeds on different traffic segments.

Conclusions drawn from this analysis are that (1) hydrocarbon levels for the three-hour period from 6 to 9 A.M. would be approximately 50 percent of present levels (i.e., 0.95 ppm), and (2) that the 60 percent reduction required to achieve oxidant levels would be approached but not attained in the area of the VMF. Since both transportation and non-transportation sources will be reduced by approximately 50 percent, transportation sources would continue to contribute 77 percent of total air quality levels in 1980.

Anticipated roll-back for <u>nitrogen oxide</u> levels is not expected to be successful in bringing levels within the annual average standard. The present 0.14 ppm annual average estimated is comprised of 0.08 ppm from motor vehicle emissions in midtown Manhattan and 0.06 ppm from stationary sources. The stationary source contribution is anticipated to be reduced to 0.04 ppm by various control strategies. Estimates developed for reductions in 1980 NO_X emissions from transportation sources in the study area are 52 percent of 1972 values for the A.M. period and 47 percent for the P.M. period. An average of 50 percent reduction in transportation emissions would still yield a total of 0.08 ppm



> 50 mg. / meter second

> 30 < 50 mg. / meter second

> 10 < 30 mg. / meter second

ENVIRONMENTAL CONSULTANTS

PRINCIPAL CONSULTANT: Edwards and Kelcey, New York

AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.

ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

ESTIMATED PEAK VEHICLE EMISSION RATES - CO, 1972 & 1980

(without VMF project)

Figure II-6

for the annual average in the study area, which exceeds the 0.05 ppm annual average standard. The diurnal variation of NO_X would be tempered by the fact that 33 percent of the total emissions are from non-transportation sources.

In the case of carbon monoxide, in particular, and to a lesser extent hydrocarbons and NO_X, values predicted for peak period would show some local variation according to the emission densities found on the particular streets.

C.3 STREET TRAFFIC EMISSION PATTERNS

1972 and 1980 emissions were calculated for street traffic in the study area by procedures described in Appendix C (Section C.4). As might be expected, severest emission loadings occur on the north-south avenues. Ninth Avenue is the line source with greatest emissions concentration for the peak morning traffic, followed by Tenth and Eighth Avenues. The larger traffic capacity and volumes of the avenues make the greater pollution loadings evident. The fact that Ninth Avenue is the major southbound route at that time when travel is southerly accounts for its morning predominance. Eighth and Tenth Avenues become secondary sources. Eleventh Avenue generates a marginally smaller amount of emissions but more than any of the east-west street segments.

Of the east-west streets, 30th Street is the largest line source in morning peak flows, while 30th and 29th Streets are equally important generators in the evening peak. The reduced capacity of the remaining streets together with reduced loading and congestion has made the other streets relatively insignificant line sources.

Figure II-6 illustrates estimated CO emission loadings for various roadway segments in the vicinity of the project site for 1972 and 1980. Reduced 1980 emission loadings reflect the impact of Federal Emission Standards on motor vehicles, while traffic volumes and composition will remain essentially the same.

D. NOISE ENVIRONMENT

Human response to noise is a function of sound intensity, frequency spectrum, and time varying character. In measuring and assessing factors of sound intensity and frequency as related to human perception and reaction, noise is best expressed in units of dBA, i.e., decibels of sound intensity measured with an A-scale weighting of frequency. These units can be read from standard sound level meters equipped with frequency sensitive filters that give weightings to sounds measured at various frequencies in a manner that approximates human

ear sensitivity. The A-weighted sound level reading displays good correlation to human response to noise. The third factor of time variation reflects the fact that noise is rarely constant.

To describe the noise level at a particular site over any particular time period--either from measurements taken on the spot or extrapolated from other information--a consistent statistical approach is used. Because the sound level varies over time, it is important to evaluate what percent of a time period (ten minutes, one hour or one day) that a noise level is exceeded.

All the descriptions which follow are in units of dBA--decibels on the A-weighted scale--and are defined as follows:

L_1: that sound level which is exceeded one percent of the sample period. L_1 is a good descriptor of peak noise levels as would be caused by a police siren, horn burst, fire engine, or the acceleration of a truck (or trucks) on a light traffic street.

L_{10}: that sound level which is exceeded only 10 percent of the sample time period. This level reflects the occurrence of discrete noise events in the environment which are louder than the "normal" ambient or background level. For example, the L_{10} can be used in assessing the presence of nearby traffic operations at a site. Federal Highway Administration (FHWA) standards are based on L_{10} levels.

L_{33}: that sound level which is exceeded 33 percent of the sample time period. This value is important because of U.S. Department of Housing and Urban Development (HUD) Noise Standards which set limits to sound levels for external exposure of new construction sites. These standards deal with exposures to noise levels for not more than 8 hours per 24-hour period. This is the L_{33} value for a full day.

L_{50}: that sound level which is exceeded 50 percent of the sample time period. This value is a good description of the "average" or mean sound level at a site and has been used extensively to describe various community noise situations. It includes steady state sources and the influence of discrete events.

L_{90}: that sound level which is exceeded 90 percent of the sample time period. It is a description of the ambient sound level that exists almost all the time at the particular measurement location. Thus, it is mainly a reflection of background levels from steady state sources (such as constant distant traffic) and is not heavily influenced by discrete events.

D.1 AMBIENT NOISE AT STREET LEVEL

Relative to traffic noise, Federal Highway Administration (FHWA) design noise levels* are based on the A-weighted sound level exceeded 10 percent of the time, abbreviated L_{10}dBA.

Ambient noise levels around the project site were estimated using procedures described in Appendix D. Figure II-7 illustrates the findings of this analysis expressed in contours of L_{10}dBA measured at ground level. Much of the project site exceeds the FHWA exterior noise standard for residential land use of 70 dBA.

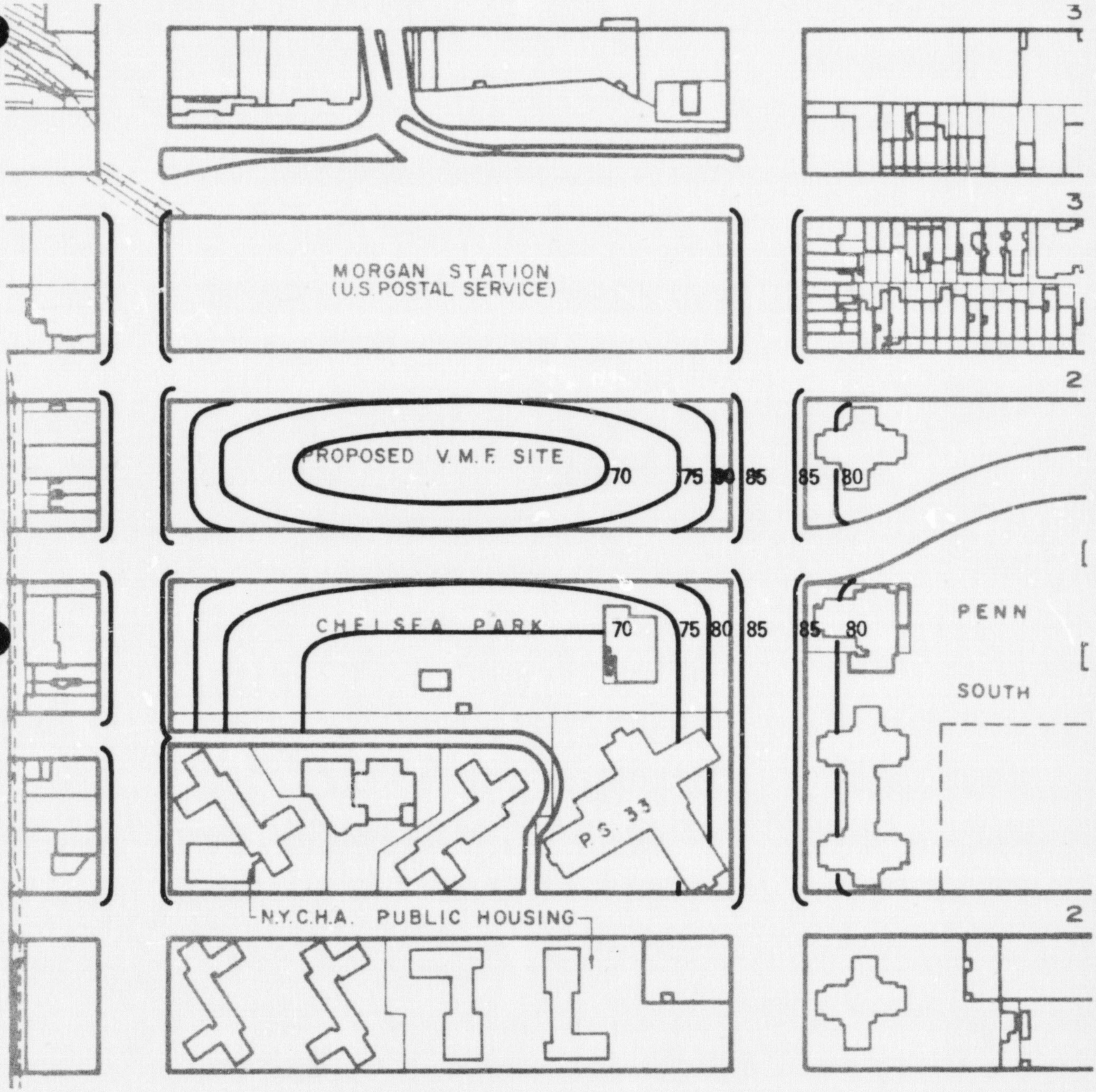
Correlating to essentially unchanged future traffic conditions without the proposed VMF, 1980 ambient or "background" noise is expected to remain at present levels.

D.2 AMBIENT NOISE AT ABOVE-GROUND ELEVATIONS

Additional acoustical measurements, described in Appendix E, were taken to estimate the present and future noise level at elevations above ground. This was done because the nearest air rights apartments will be at least 60 feet above ground level. Continuous recordings over 24-hour periods were made on the rooftops of Public School 33 and the Penn Station South apartment building at Ninth Avenue between 28th and 29th Streets. Similar rooftop measurements were conducted at Morgan Station, representing an elevation between the other two locations, as a check to validate height: sound level relationships derived from measurements at the other locations.

Cumulative distributions of noise levels for P.S. 33 and the apartment building are illustrated on Figure II-8, which relates the ambient conditions to HUD noise standards. L_{33} levels are approximately 71 dBA and 66.5 dBA for the public school and apartment house measurement locations, respectively. Thus, existing noise levels are considered "Normally Unacceptable" for new housing construction by HUD standards. These standards and the impact of ambient noise levels on the proposed air rights housing are discussed in detail in Section III A.3(c).

*FHWA Policy and Procedure Memorandum 90-2, Noise Standards and Procedures, February 8, 1973.

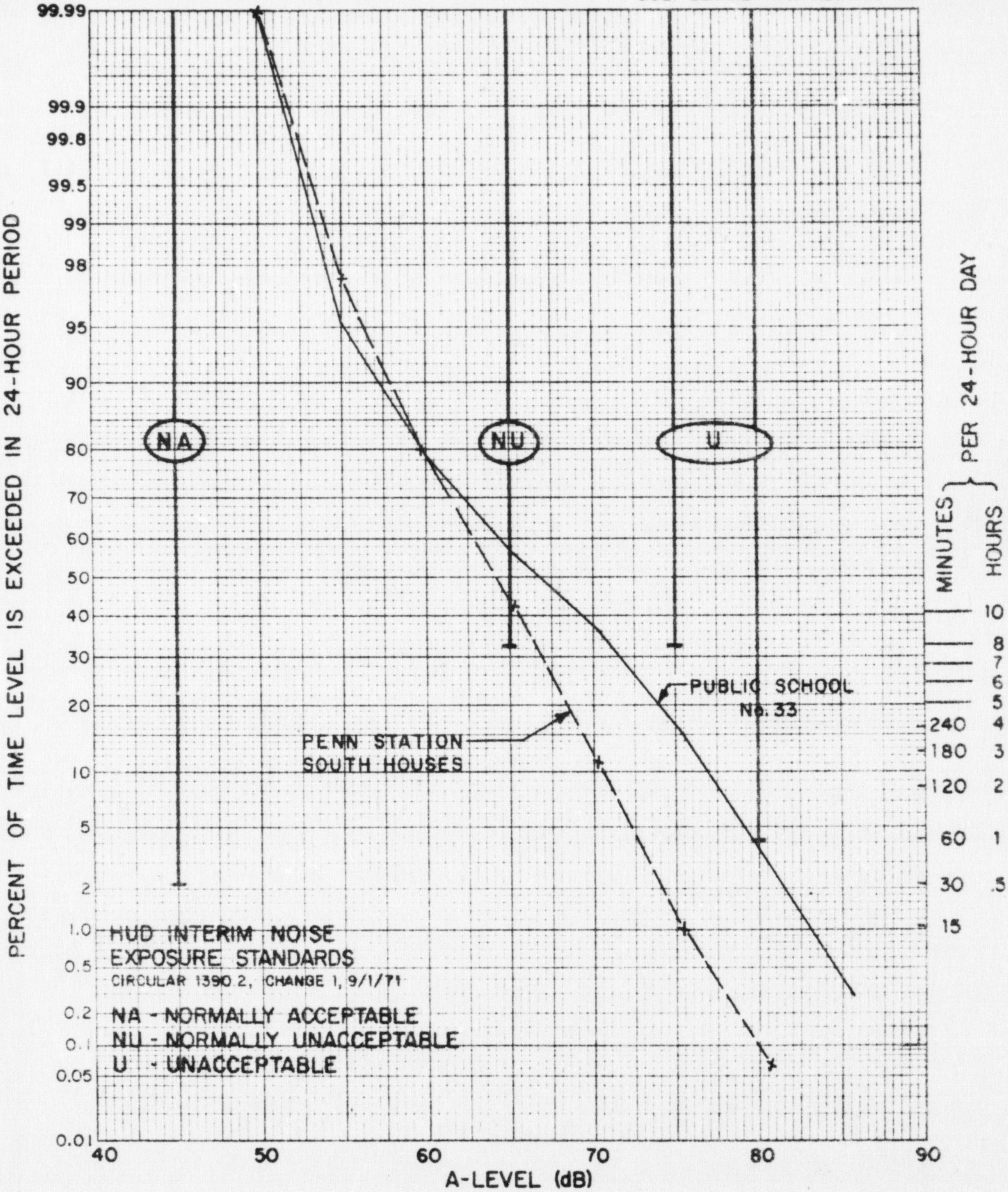


ENVIRONMENTAL CONSULTANTS

PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

PRESENT NOISE ENVIRONMENT IN L_{10} dBA

Figure II-7



CUMULATIVE NOISE LEVEL DISTRIBUTION P.S.33 and PENN SOUTH HOUSES

ENVIRONMENTAL CONSULTANTS

PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure II-8

BBN 020-21 1/73

D.3 OUTDOOR-TO-INDOOR NOISE REDUCTIONS AT PUBLIC SCHOOL 33

Because of the proximity of Public School 33 to the construction site, the outdoor-to-indoor noise reduction afforded by its construction was measured directly, rather than relying upon typical tabulated values.

The traffic on Ninth Avenue was used as noise source, and microphones were placed outside the facade of the school and inside in a classroom facing Ninth Avenue. A total of four simultaneous recordings (5 minutes each) were made, as follows:

Outside	Inside
3' from facade	3' from window--open
3' from facade	8' from window--open
3' from facade	3' from window--closed
3' from facade	8' from window--closed

The results of the measurements are shown on Figure II-9. With open windows, noise reduction was 5-15 dBA, depending upon the position in the classroom. With closed windows, noise reduction was 20-23 dBA, depending upon the position in the classroom.

Figure II-10 shows the cumulative distribution of the sound level found during the four measurement periods. Also shown on the figure is the cumulative distribution for a three-hour period of the sound level as measured on the roof of Public School 33. As can be seen, the difference between the levels measured continuously on the roof and on the ground is between 0.5 and 1.5 dB. The close correlation demonstrates that the five-minute indoor-outdoor simultaneous measurements are representative of the sound levels that can be expected during normal teaching hours.

Ranges of the sound level for L_{50} and L_{10}, sound levels exceeded 50 percent and 10 percent of the time, are as follows:

	Outside	Inside Open Windows	Inside Closed Windows
L_{50}	70.5 dBA	55-60.5 dBA	47.5-50.5 dBA
L_{10}	77.5 dBA	62.5-67.5 dBA	54-57 dBA

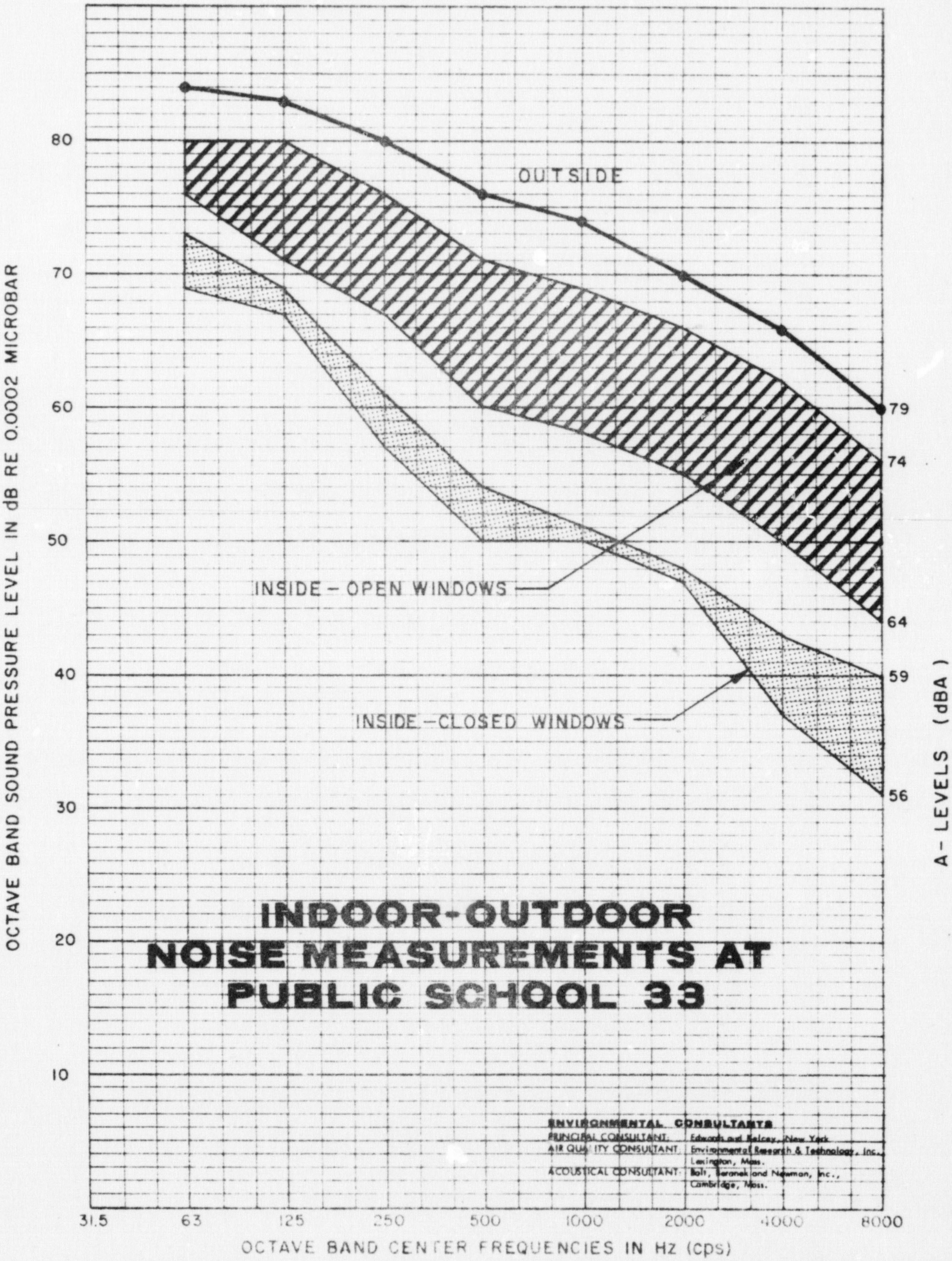

OUTSIDE
INSIDE - OPEN WINDOWS
INSIDE - CLOSED WINDOWS
INDOOR-OUTDOOR
NOISE MEASUREMENTS AT
PUBLIC SCHOOL 33
80
70
60
50
40
30
20
10
79
74
64
59
56
31.5
63
125
250
500
1000
2000
4000
8000
OCTAVE BAND SOUND PRESSURE LEVEL IN dB RE 0.0002 MICROBAR
OCTAVE BAND CENTER FREQUENCIES IN Hz (cps)
A - LEVELS (dBA)
ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure II - 9

E. URBAN FORM

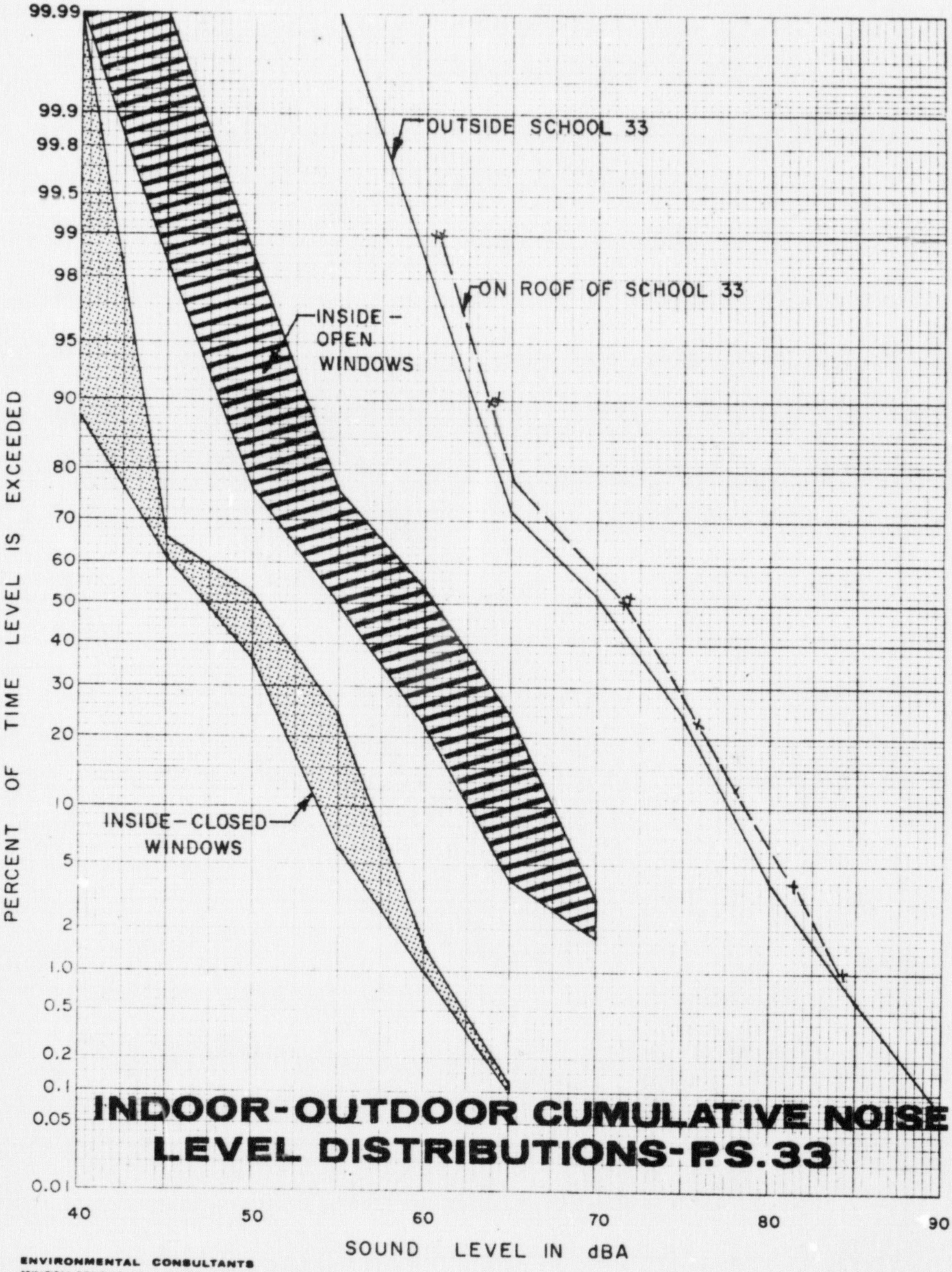
E.1 LAND USE

Figure II-11 illustrates the diverse nature of the area surrounding the project site and the transitional location of the site. North of 30th Street, commercial, manufacturing, and transportation activities prevail. Manufacturing, transportation, and warehousing facilities dominate the area west of Tenth Avenue. South and east of the site are found the residential, institutional, and public facilities of the Chelsea community.

The area has undergone dramatic land use changes since 1960, with the development of the Chelsea Houses public housing project, the sprawling Penn Station South cooperative project, and the clearance of the project site, making significant alterations to the form and social fabric of the community. In addition to the three major high-rise housing projects (including the Elliot Houses) in the vicinity, tenements and brownstones are found in areas along side streets between Eighth and Tenth Avenues.

Joining the brownstone revival occurring in many sections of the City are dwellings along 29th and 30th Streets between Eighth and Ninth Avenues, now being privately renovated. Three- and four-story tenements which used to prevail in the area have been largely replaced by housing projects. Others have been razed and replaced with parking lots, the project site itself providing the most visible example. Along the north-south avenues, buildings are shared by residential and commercial uses. Few residential uses are found west of Tenth Avenue, none between Eleventh and Twelfth Avenues.

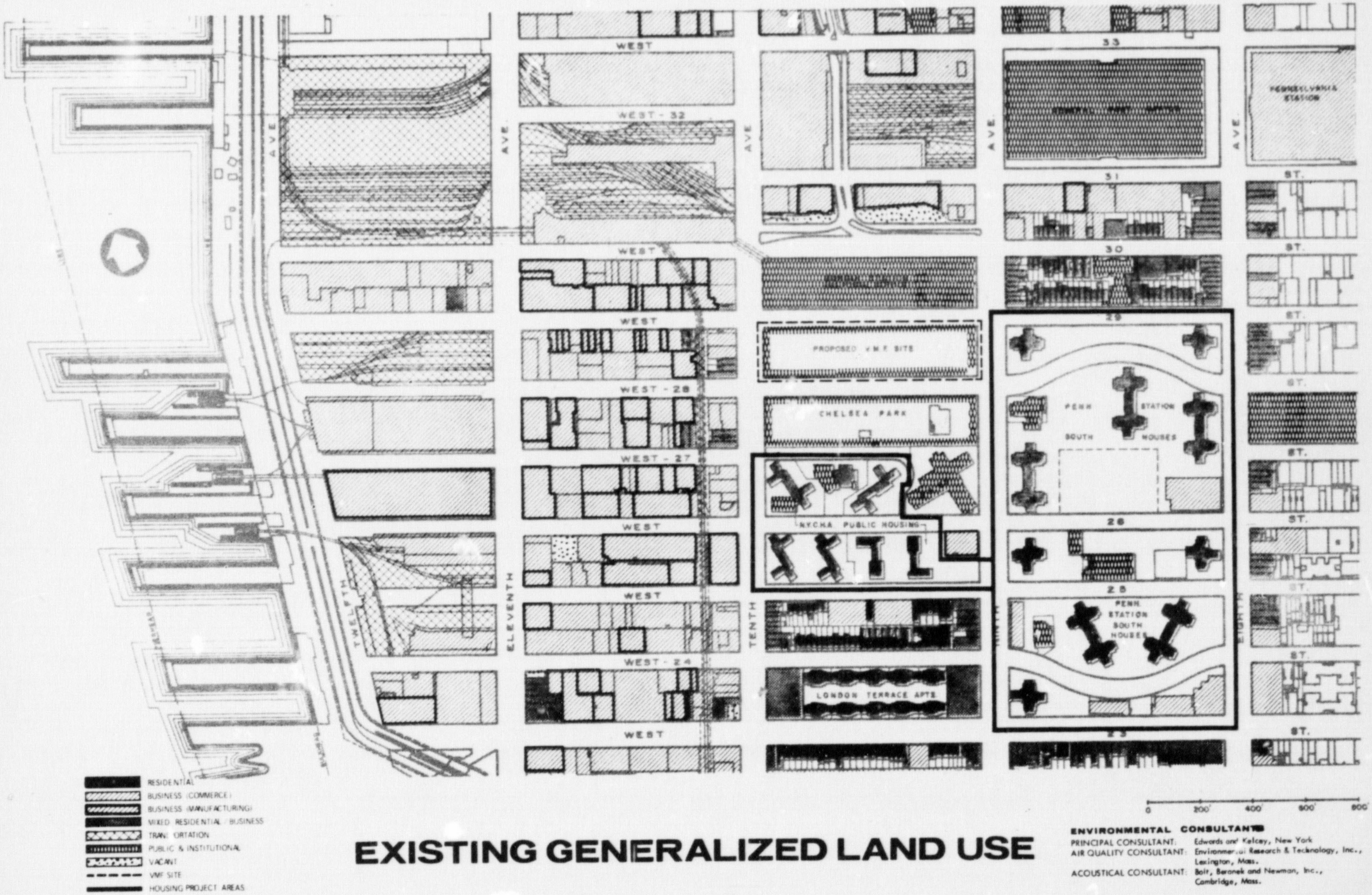
Complementing and serving the residential district are a variety of institutional and public facilities in the vicinity of the project site. Chelsea Park, an urban park-playground situated directly south of the site, is the principal open space facility in the Chelsea community. The Lower West Side District Health Center, an out-patient clinic serving the community, is located within the Park near Ninth Avenue. The P.S. 33 elementary school is located immediately adjacent and to the south of the health center. Two other facilities should be noted: (1) French Hospital fronting on 29th and 30th Streets between Eighth and Ninth Avenues, and (2) the Church of the Holy Apostle, a City landmark situated at the corner of Ninth Avenue and 28th Street, diagonally across from the project site.



ENVIRONMENTAL CONSULTANTS

PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure II -10



EXISTING GENERALIZED LAND USE

ENVIRONMENTAL CONSULTANTS

PRINCIPAL CONSULTANT:	Edwards and Kelcey, New York
AIR QUALITY CONSULTANT:	Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT:	Bolt, Beranek and Newman, Inc., Cambridge, Mass.

FIGURE II-11

E.2 COMMUNITY DEVELOPMENT POTENTIALS

No major land use conversions, either by public or private action, are anticipated in the area, with the exception of changes that may occur as a result of West Side Highway redevelopment.

Without development of the VMF project, two conditions are possible for the site:

- It will remain in Postal Service ownership and used for the storage and parking of postal vehicles, or
- It will be released for private development.

The guide for prospective development under the second condition is current zoning, which divides the site laterally between light manufacturing and commercial use designations, as shown in Figure II-12. Site reuse potentials under present zoning are:

- Residential uses and central business district commercial activities in the C6-4 portion, and
- Commercial and light manufacturing uses (but no residential development) in the M1-5 northern half of the site.

Development of uses permitted under current zoning would return the site to fully productive tax status.

F. SOCIAL ENVIRONMENT

F.1 POPULATION AND INCOME CHARACTERISTICS

Population of four census tracts* encompassing the general area of the site grew by four percent from 1960 to 1970. This small net gain results from losses in most blocks comprising the four tracts being offset by major increases associated with the Penn Station South and Chelsea Houses residential projects. An estimated 675 persons were displaced from the project site during the 1960's.

The development of major housing projects in the area and the gradual conversion of rent-controlled apartments to upper-income units have caused significant social changes to take place in the area population. Among them:

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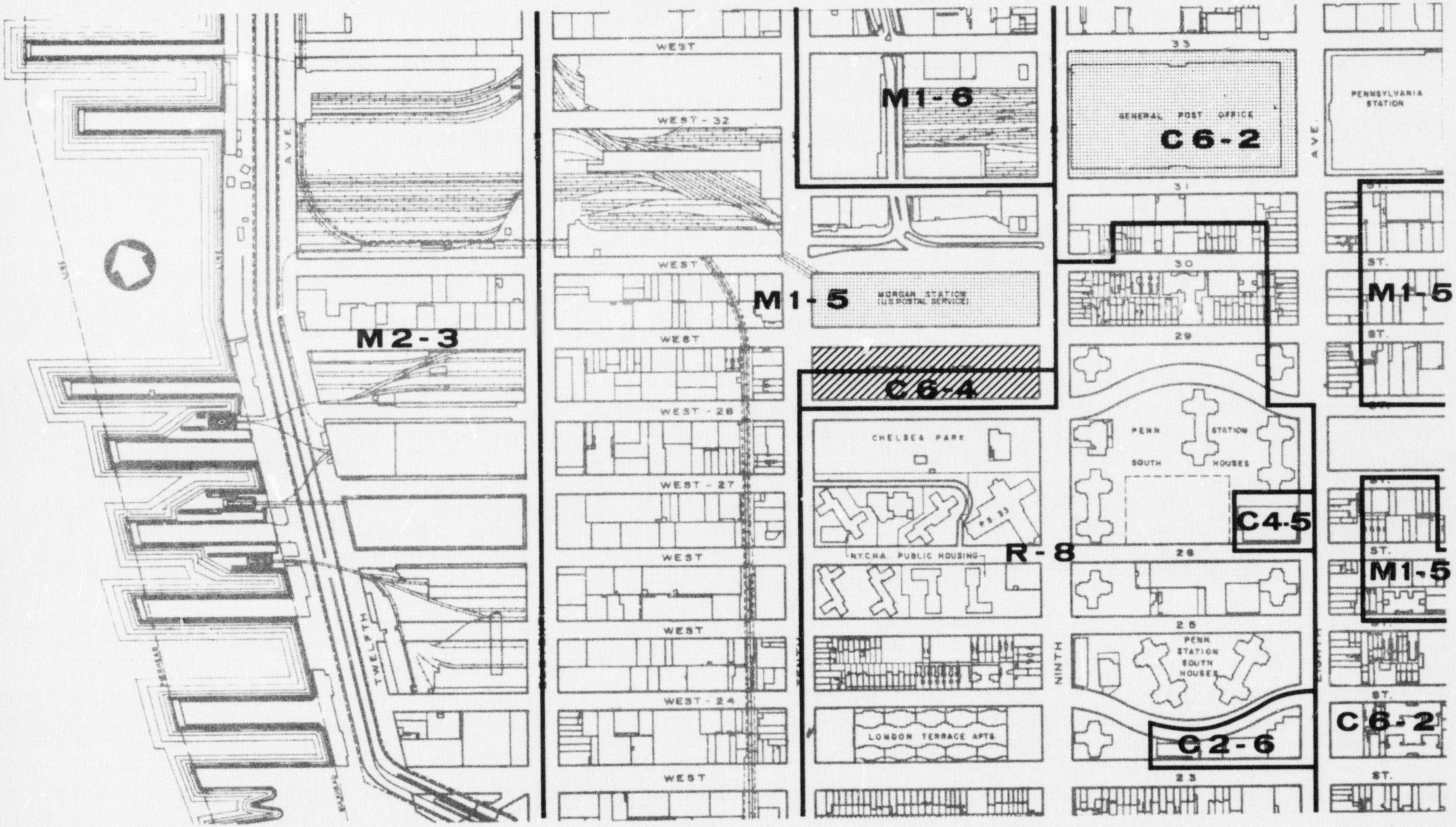
*Census tracts 93, 97, 99, and 103 as delineated on Figure II-13.



0 200' 400' 600' 800'

EXISTING POSTAL FACILITIES

PROPOSED VMF

ENVIRONMENTAL CONSULTANTS

PRINCIPAL CONSULTANT: Edwards and Kelcey, New York

AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.

ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

EXISTING DISTRICT ZONING

FIGURE II-12

(1) Displacement of low-income family units, coupled with an influx of middle- and upper-income households. This is reflected in a two- to three-fold increase in median family income compared to the Manhattan increase of 50 percent between 1960 and 1970. Despite the influx of middle- and upper-income families, a visible low-income segment is revealed by the 27 percent living on Social Security, the 8 percent subsisting on incomes below poverty levels, and the 8 percent on Public Assistance.

(2) An increase of the older age population from 11 percent in 1960 to 20 percent in 1970. Most of this increase is attributable to the Chelsea Houses senior citizens addition and the Penn Station South project. Table A-6 of Appendix A details age distribution trends for the four census tracts.

(3) A significantly lower per household population compared to the Manhattan average, due largely to the growth of the older age population segment in the area.

F.2 HOUSING

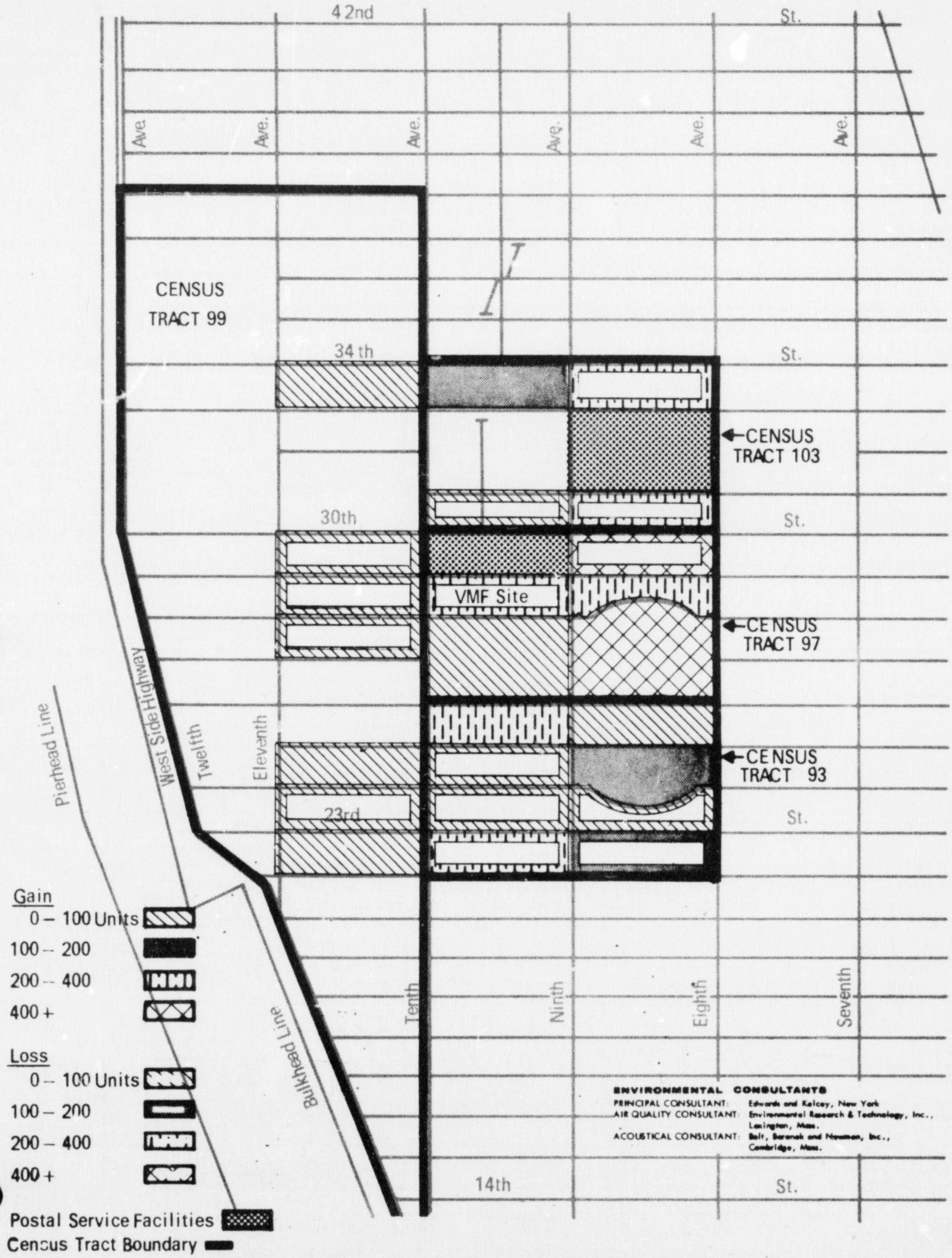
Since 1960, the number of housing units in the four census tracts has declined by 300, while a loss of 5,000 units was recorded in all of Community Planning District #4.

Declines have resulted from the conversion of old rent-controlled apartments to upper-income units and displacement by public facilities, commercial activities, and parking lots. Cumulatively, these factors have caused an acute shortage of low- and moderate-income housing in the Chelsea area.

Figure II-13 illustrates, by block in the vicinity of the project site, gains and losses of housing units between 1960 and 1970. Declines are most apparent in blocks bordering 23rd and 30th Streets, the two crosstown streets on which conversions and displacements of housing units have occurred in greatest number. In addition, 215 housing units were displaced from the project site.

An otherwise even greater loss of housing units in the area was counteracted by a net gain of some 1,400 units in the area between 23rd and 29th Streets comprising the Penn Station South project. Detailed housing statistics are presented in Tables A-3 and A-4 of Appendix A.

Compounding the housing shortage is the low annual turnover in the large-scale housing developments. These projects, which account for approximately 60 percent of all housing units in the four census



DWELLING UNIT CHANGE BY BLOCK
1960 TO 1970

Figure II–13

tracts, have annual turnover rates of two percent for the Penn Station South project, 7.5 percent for the Chelsea Houses, and 4.6 percent for the Elliot Houses.*

With the overall decrease in total housing units and the low turnover rates in the large housing developments, the proposed VMF air rights housing will provide a much needed resource. An indication of the type of housing needed for the project site is provided by a housing survey of approximately 1,000 families in the Chelsea area recently conducted by Community Planning Board #4. Preliminary analysis indicates a need for low- and moderate-income large unit rental housing.

The City Housing and Development Administration (HDA) has promised low- and moderate-income housing for the air rights project to be built to Mitchell-Lama standards under Federal FHA 236 program financing, with some units provided for the elderly and some for public housing (by lease or sale to the City Housing Authority). The formula recommended by HDA is 60 percent moderate income, 30 percent low income public housing, and 10 percent senior citizen housing.

The Housing and Planning Committee of Community Planning Board #4 supports the need to provide low- and moderate-income units and has recommended the following general order of priority for project tenancy:

(1) People displaced from the site who wish to return to the Chelsea community if attractively priced housing were available.

(2) Lower and moderate income residents of Chelsea.

(3) Lower and moderate income residents of Clinton.

F.3 COMMUNITY SERVICES

The housing portion of the project will increase demands on education, recreation, and health service facilities in the vicinity. At the present time the P.S. 33 elementary school and I.S. 70 intermediate school serving the area are utilized to 57 percent and 81 percent of their capacities. The Charles Evans Hughes high school is currently (1971) operating at 83 percent of capacity. In all cases, there is spare capacity available to serve the proposed air rights housing project.

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*1971 Statistics

The Lower West Side District Health Center is apparently operating to the limit of current programs and staff, but can expand plant and personnel to accommodate increased demands. Chelsea Park is the principal park site in the area and already serves a significant population base. With a general leveling off of the youth population level and the provision of self-contained open space and recreation in such recent housing projects as the Penn Station South development, it is suspected that Park usage actually may be lower now than in 1960, though there are no known available use statistics to bear this out.

SECTION III THE ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

A. POTENTIAL ENVIRONMENTAL IMPACTS

Potential environmental impacts of the proposed action are described for each of six general issue areas considered most reflective of this urban situation (not in order of importance):

- Street Traffic and Circulation
- Air Quality
- Noise Environment
- Urban Form
- Socio-Economic Conditions
- Infrastructure

Adverse, beneficial, and neutral impacts of project development and operation are identified. Neutral impacts are those for which changes of physical and socio-economic conditions are not expected to have observable adverse or beneficial consequences.

Impacts are described where applicable for three basic conditions:

(1) The impact of the total project on the community.

(2) The impact of the VMF portion on the housing portion.

(3) The impact of the ambient environment on the project, particularly the housing portion.

The first condition is basic to environmental impact statement requirements. The second and third conditions also are included, due to the nature of the proposed action. Noise and air quality changes caused by the VMF and affecting the quality of the housing project environment should be acknowledged. In addition, ambient noise levels (apart from those associated with VMF impact) will affect the housing project in terms of its acceptance by the U.S. Department of Housing and Urban Development (HUD) for financial support.

A.1 STREET TRAFFIC AND CIRCULATION

A.1.(a) Postal Vehicle Travel

Weekday travel requirements for vehicles to be garaged in the proposed VMF will be increased over present conditions by approximately 100 vehicle miles per day, net, as summarized in Table III-1.

The increased mileage is the result of additional travel of light duty 1/4- to 2-ton vehicles serving lower Manhattan, which are presently garaged on Leroy Street. Travel to a 29th Street VMF will add from one to two miles per movement, depending upon the trip origin/destination, totaling nearly 600 added vehicle miles per day. This additional travel will be primarily along uncongested Ninth and Tenth Avenues south of the VMF and should produce no significant change in traffic operations.

By contrast, heavy duty vehicle (5-ton and diesel) movements will be reduced by approximately 300 vehicle miles per day. Much of this reduction will result from the combined VMF-PMC operation on 29th Street, eliminating present travel between the 34th Street Garage and G.P.O. Manhattan. The more easterly location of the proposed VMF will also reduce total travel for midtown light duty vehicles, most of which are presently located at Piers 74 and 76.

Along with the travel mileage reductions, reduced postal traffic on 31st, 33rd, and 34th Streets will lessen the impact of non-postal traffic diversions from 29th Street, as discussed later in this section. Detailed tabulations of anticipated travel changes by vehicle type and origin/destination are provided in Appendix B (Table B-5).

A.1.(b) Peak-Hour Traffic

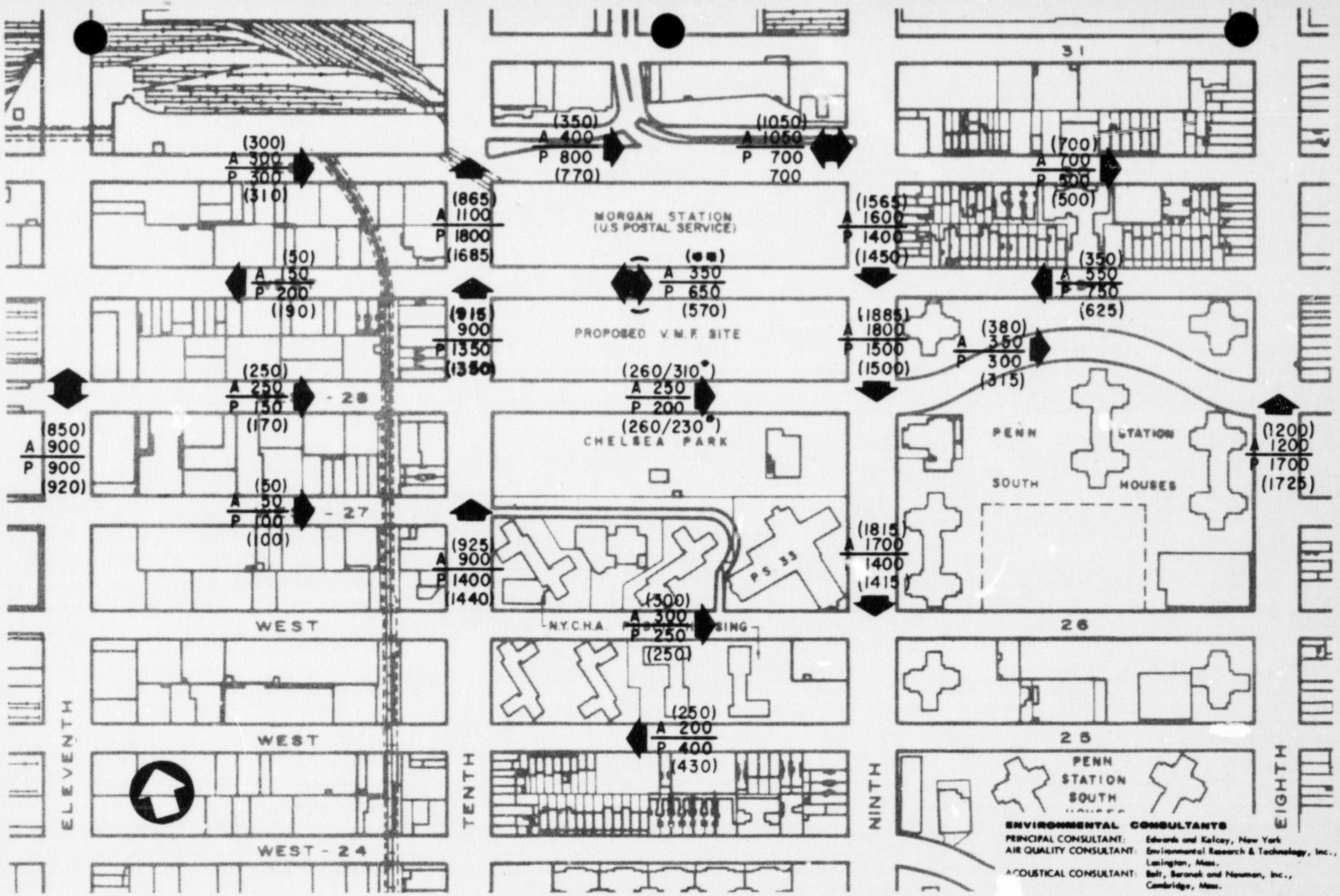
Figure III-1 illustrates the projected changes in peak-hour traffic volumes, reflecting VMF, PMC and housing project traffic and the restricted use of 29th Street. VMF Postal vehicle movements will be minimal during the A.M. peak traffic period (8-10 A.M.), since outbound movements of the local post office fleet are scheduled prior to 8 A.M. While the combined effect of postal, apartment, and rerouted traffic will increase the volume on Ninth Avenue south of 29th Street by roughly 100 vehicles per hour, the greatest A.M. peak period traffic change will be decreases of approximately 100 to 250 vehicles per hour on 29th Street and on Tenth Avenue north of 29th Street, as a result of diversions to 31st, 33rd, and 34th Streets with the closing of 29th Street to non-postal traffic.

Table III-1

VMF TRUCK MOVEMENTS - SUMMARY

	No. of Daily Movements	Present Vehicle Mileage	Proposed Vehicle Mileage	Vehicle Mileage Change
1/4 to 2 Ton Units				
Leroy St.(1)	328	410	990	+580
Piers/34th St.(1)	674	1290	1110	-180
Sub-total	1002	1700	2100	+400
5 Ton Units - 34th St.(1)	646	710	470	-240
Diesel Tractors - 34th St.(1)	566	1010	950	- 60
Totals	2214	3420	3520	+100

(1) Present Garage Location



LEGEND

- DIRECTION OF TRAVEL
- (000) A. M. PEAK HOUR WITH PROPOSED DEVELOPMENT
- A 000 A. M. PEAK HOUR EXISTING
- P 000 P. M. PEAK HOUR EXISTING
- (000) P. M. PEAK HOUR WITH PROPOSED DEVELOPMENT

* VOLUMES SHOWN ARE FROM TENTH AVE. TO APARTMENT PARKING ENTRANCE RAMP AND FROM EXIT RAMP TO NINTH AVE., RESPECTIVELY

** VARIES – POSTAL VEHICLES ONLY

AVERAGE WEEKDAY TRAFFIC VOLUMES AM & PM PEAK HOURS • EXISTING and POST DEVELOPMENT

FIGURE III-1

Traffic increases during the P.M. peak traffic period (4-6 P.M.) are anticipated to be generally less than 50 vehicles per hour. Along 29th Street, the net effect of added postal vehicles and anticipated non-postal traffic diversion is expected to reduce total traffic from 750 to 625 vehicles per hour between Eighth and Ninth Avenues and 650 to 570 vehicles per hour between Ninth and Tenth Avenues. No significant changes in the components of heavy duty gas-powered or diesel trucks are anticipated during either the A.M. or P.M. peak traffic periods. Anticipated changes, resultant total volumes, and heavy duty truck components are described and tabulated by street segment in Appendix B (Table B-6).

A.1.(c) Peak VMF Traffic

The peak period of VMF activity will occur between 5 A.M. and 7 A.M. when approximately 160 to 180 movements per hour of light duty vehicles outbound to the local postal stations are added to the relatively constant hourly flow of heavy duty units. With two-directional postal operation 29th Street, equally split north- and southbound vehicles will be able to move directly to Tenth and Ninth Avenues, respectively. The additional movements on Ninth and Tenth Avenues, occurring prior to peak street traffic hours, will not significantly affect operating conditions. Noise implications of the early morning traffic increase are discussed in Section III.A.3.(b).

A.1.(d) 31st, 33rd, 34th Street Traffic

During midday hours, the closing of 29th Street to non-postal vehicles will divert approximately 400 westbound movements per hour to 31st, 33rd, and 34th Streets, which presently carry a combined westbound hourly load of approximately 1,400 vehicles. Although subject to intermittent delays and congestion due to trucking operation and pedestrian conflicts, these streets are presently relatively uncongested with average overall travel speeds in the range of 10 to 15 miles per hour. Relocation to the VMF of vehicles garaged on 34th Street and transfer of PMC operations to Morgan Station will eliminate approximately 60 westbound and 40 eastbound (34th Street) midday movements per hour by heavy duty postal vehicles, and reduce postal vehicle parking needs on 31st and 33rd Streets adjacent to the G.P.O.

Current posted parking regulations on 31st and 33rd Streets prohibit curb parking on at least one side between 8 A.M. and 6 P.M. In practice, however, the parking of vehicles on both sides and truck loading operations restrict flow at most times to one effective lane of moving traffic. The additional traffic load diverted from 29th Street would, under such "prevailing" parking conditions,

Table III-2

MIDDAY WESTBOUND TRAFFIC

(Vehicles per hour between Eighth and Tenth Avenues)

With Prevailing Parking Conditions	Present (average)	Postal Vehicle Reduction	Estimated Diversion[1]	Net Volume	Estimated Cp[1]
34th Street	500	-20	+150	630	700
33rd Street	400	-30	+175	545	600
31st Street	500	-10	+ 75	565	600
Totals	1,400	-60	+400[2]	1,740	1,900
With Restricted Parking Conditions					
34th Street	500	-20	+100	580	700
33rd Street	400	-30	+210	580	730
31st Street	500	-10	+ 90	580	700
Totals	1,400	-60	+400[2]	1,740	2,130

[1] Diverted traffic apportioned to 31-33-34 Streets based on estimated Cp (possible capacity) of the streets under "prevailing" and "restricted" parking conditions.

[2] 400 vph of 450 vph average midday volume from 29th Street.

increase westbound demands to near the combined 31st, 33rd, 34th Streets possible capacity of 1,900 vehicles per hour as indicated in Table III-2. As a result, the frequency of delays and congestion would increase, with a corresponding decrease in air quality as described in Section III.A.2.(a).

While elimination of all parking would be both impractical and unnecessary, rigid enforcement of existing parking prohibitions on at least one side of 31st and 33rd Streets would provide sufficient westbound capacity to accommodate the additional vehicles diverted from 29th Street under conditions comparable to, or improved over, present traffic operations. Reduced demand for parking of postal vehicles in the vicinity of the G.P.O. will help in achieving the improved parking conditions.

Estimated diversion and volume-to-capacity relationships with parking on 31st and 33rd Streets restricted to one side (i.e., two lanes of moving traffic on each street) are shown in Table III-2, providing a comparison with "prevailing" conditions. Despite the increase in total traffic, changes in air quality due to the diversions would not be significant as described in Section III.A.2.(a).

A.1.(e) Parking Demand

While the increased convenience to subways (as compared to the present 34th Street and pier locations) is expected to encourage transit usage for work trips, the 1500 VMF employees and drivers could likely increase the demand for on- and off-street parking in the area. Approximately 50 postal employees presently using the site for parking will also be required to change their mode of travel or find alternative parking facilities.

A.2 AIR QUALITY

Changes in air quality resulting from the construction and operation of the VMF are assessed in relation to 1980 vehicular emissions and background air quality and their relationship to the National Ambient Air Quality Standards. Conditions are examined for A.M. and P.M. peak hour traffic conditions and for off-peak periods when VMF and PMC postal vehicle movements are greatest. Also considered is the midday period when the maximum diversion of traffic from West 29th Street is expected.

Potential changes in air quality due to VMF operation are investigated for three spatial scales of concern:

(1) The microscale of the VMF site itself and of individual street segments in the vicinity of the project site.

(2) The mesoscale of the three-by-five block study area.

(3) The macroscale of a larger area of Manhattan.

Three pollutants, carbon monoxide, non-methane hydrocarbons, and oxides of nitrogen, are reviewed in the analysis. Emphasis has been placed on carbon monoxide because it is the transportation related pollutant of greatest risk to health and because the existing data for CO is most complete.

New York City specific traffic emissions were derived from the City Implementation Plan to calculate street emission source strengths. This study also employed a numerical advection diffusion computer model to calculate applicable air quality levels. A detailed discussion of the various techniques is given in Appendix C.

A.2.(a) Changes in Air Quality Due to Traffic (Line Source) Emissions

One important impact as a result of the construction of the facility is a reduction in the daily emissions of postal vehicles. Although there is an increase in the mileage of light duty vehicles (2 tons and less), there is an offsetting decrease in the mileage of 5-ton trucks. This results in a substantial decrease in overall CO and HC emissions as shown in Table III-3.

The relative changes in air quality on individual streets resulting from the VMF operation were assessed by calculating 1980 vehicular emission estimates with and without the proposed VMF project. The focus of the study is on the three-by-five block surrounding the VMF. Additional analyses consider the diversion of traffic to 31st, 33rd, and 34th Streets.

Scheduling of peak VMF postal vehicle operations during the 5-8 A.M. early morning period avoids the peak 8-10 A.M. rush hour period. By avoiding this peak rush hour period, it is estimated that emissions from each gasoline-powered postal truck will be only 60 percent of emission levels associated with otherwise congested flow conditions. As scheduled, VMF operations will generate emissions in the study area totaling approximately 30 percent of those associated with A.M. rush period traffic. Non-rush hour emissions from other than VMF traffic, based on uncongested flow characteristics, average approximately 50 percent of peak hour conditions.

For individual streets in the fifteen-block primary study area during the 1980 A.M. peak, there is no distinguishable difference in emissions whether or not the VMF is built. Levels of CO emitted are within 3 milligrams per meter-second (mg/m/sec) in either case, small enough to be considered negligible. For the 1980 A.M. peak, however, greater differences are found. A reduction of 50 percent (11 mg/m/sec) is found for Tenth Avenue between 29th and 30th Streets with the VMF. This beneficial impact is due primarily to projected traffic reductions which create an uncongested flow volume.

Table III-3

1980 DAILY POSTAL VEHICLE EMISSIONS[1]

(grams/day)

Vehicle	Carbon Monoxide With VMF	Carbon Monoxide Without VMF	Hydrocarbons With VMF	Hydrocarbons Without VMF
light duty	32550	26350	3150	2550
heavy duty	83002	125386	14664	22152
diesel	33630	35754	19000	20200
Total	149182	187490	36814	44902

(1) Calculated from mileage up to first (last) stop after leaving (before entering) the VMF. See Table III-1.

For the three-by-five block area, it is apparent that no significant impact, beneficial or adverse, is caused, as revealed in Table III-4. Either with or without the VMF, 1980 traffic emissions will be reduced by slightly more than 60 percent because of emission controls.

Although there is little difference in emissions in the area surrounding the VMF site, Table III-5 shows that a diversion of approximately 400 vehicles per hour during the midday from 29th Street to 31st, 33rd, and 34th Streets, north of the study area, is sufficient to increase carbon monoxide emissions by as much as 82 percent on one street segment, if prevailing parking conditions are not improved. This table shows the effect of diverted traffic under prevailing and restricted parking conditions on the three streets, in terms of percent changes in CO and HC emissions from existing traffic conditions.

The effect of these increased emissions on air quality could be significant under prevailing parking conditions and adverse meteorological conditions. For example, carbon monoxide concentrations excluding background, near the intersection of 34th Street and Ninth Avenue would be 6.1 ppm with the increased traffic; whereas with no change from present volumes the CO level would be 5.5 ppm. These levels would occur with winds blowing down 34th Street at 1 m/sec. Similarly, with stagnant meteorological conditions the concentrations would be 7.9 ppm and 7.2 ppm with and without the extra traffic, respectively. Even with the increased traffic the CO concentrations, however, would be below the one-hour CO standard.

If parking restrictions on at least one side of 31st and 33rd Streets were rigidly enforced, the additional traffic could be accommodated under relatively uncongested flow conditions. The resulting carbon monoxide concentrations on 34th Street with the two meteorological conditions would for example be 4.8 and 6.2 ppm, respectively. These levels are lower than those expected with present traffic volumes and prevailing parking conditions. As Table III-5 indicates, the overall increase in emissions of carbon monoxide and non-methane hydrocarbons on the three streets would be negligible if parking restrictions were enforced.

Under stalled traffic flow and adverse meteorological conditions the carbon monoxide concentrations would increase to approximately 22 ppm. This added to a 1980 CO background level of 6.5 ppm (see Figure II-5) would result in an ambient pollutant level of 28.5 ppm, which is still lower than the one-hour standard.

A.2.(b) Impact of Traffic Emissions on the VMF and the Air Rights Housing

This section describes the air quality impact on the VMF and the air rights housing above the VMF resulting from vehicular emissions. Emissions on the street segments directly adjacent to the site have been

Table III-4

RELATIVE STUDY AREA TRAFFIC EMISSIONS[1]

(grams per hour)

	A.M. Peak			P.M Peak		
Pollutant	1972	1980 Without VMF	1980 With VMF	1972	1980 Without VMF	1980 With VMF
CO	100	38.6	38.2	100	34.1	33.8
NO_X	100	51.5	54.8	100	47.2	51.3
HC	100	50.7	50.8	100	44.4	44.5

(1) 1980 figures related to 1972 index of 100, based on composite emissions for all street segments in fifteen-block primary study area.

Table III-5

EFFECT OF DIVERTED TRAFFIC ON LINE SOURCE EMISSIONS:
31ST, 33RD, AND 34TH STREETS

	Change in CO Emissions (%)[1]		Change in HC Emissions (%)[1]	
	Under Prevailing Parking Conditions	With Parking Restricted	Under Prevailing Parking Conditions	With Parking Restricted
34th Street between Eighth & Tenth Aves.	12	-12	6	-12
34th Street between Ninth & Dyer Aves.	20	-12	11	-10
33rd Street between Eighth & Tenth Aves.	82	27	55	25
31st Street between Eighth & Tenth Aves.	67	9	44	9
Total All Segments	42	1	27	2

[1] 1980 traffic volumes, including traffic diversions, versus present traffic volumes, both using 1980 emission rates.

Note: See Section C-5 and Table C-6 of Appendix C for details.

considered with respect to these facilities, particularly on 29th Street, since Morgan Station and the VMF structure will form a street canyon where pollutants may accumulate.

The highest emissions on 29th Street would occur during the stalled traffic conditions. This can only occur when 29th Street will be open for public vehicle use, i.e., during the P.M. peak traffic hours. Several techniques, described in Appendix C of the Technical Appendices, have been used to calculate the resulting carbon monoxide concentrations.

Figure III-2 depicts the 1980 CO concentrations versus height at the 29th Street face of the VMF under stalled traffic conditions. The concentrations include a background contribution of 6.5 ppm as discussed in Section II.C.2. As the graph indicates, these values are all below 35 ppm, the one-hour CO standard. Additionally, since the highest value is about 23 ppm, postal personnel working on the vehicle platforms at Morgan Station will not be exposed to CO levels above the OSHA or NIOSH standards.

The air intake vents for the VMF are to be located at the center of the VMF roof. Figure III-3 displays isopleths of CO concentrations for the site assuming adverse meteorological and traffic conditions. At the center of the roof the expected concentration is about 7.5 ppm of which 6.5 ppm is background. Hence, relatively clean air will be ventilating the VMF even under poor meteorological and traffic conditions.

Figure III-3 also depicts the expected carbon monoxide concentrations in the recreation area for residents of the apartment complex. Again the values are quite low; they only approach the 8-hour standard of 9 ppm under the worst hourly conditions.

A report, entitled "Indoor-Outdoor Carbon Monoxide Study"* prepared for the U.S. Environmental Protection Agency, has found that carbon monoxide concentrations inside an air rights structure in a high pollutant concentration zone are similar to the values measured outside the building. This is of obvious concern at the VMF site.

The VMF housing units are completely sealed from the garage itself. Hence, none of the garage generated pollutants will enter the units. The permeability of the air rights buildings will be defined by open doors and windows, air conditioning, etc. Thus, traffic on the surrounding streets will be the only source of pollutants that could enter the structure. Table III-6 shows the highest possible CO concentrations with height outside the housing tower and the corresponding inside levels (assuming the findings of the previously mentioned study). Hence, it is unlikely that the one-hour CO standard of 35 ppm will be exceeded in 1980 in any of the housing units.

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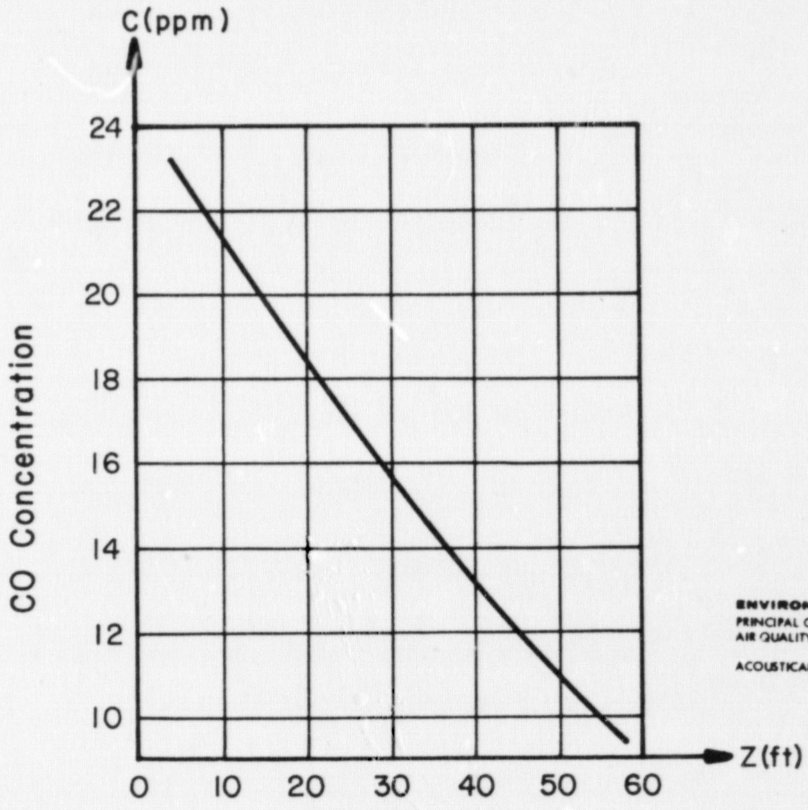
*General Electric Company, 1972: <u>Indoor - Outdoor Carbon Monoxide Pollution Study</u>, EPA-R4-73-020, Philadelphia, Pa.



Distance Above 29TH ST.

ESTIMATED CO CONCENTRATIONS*

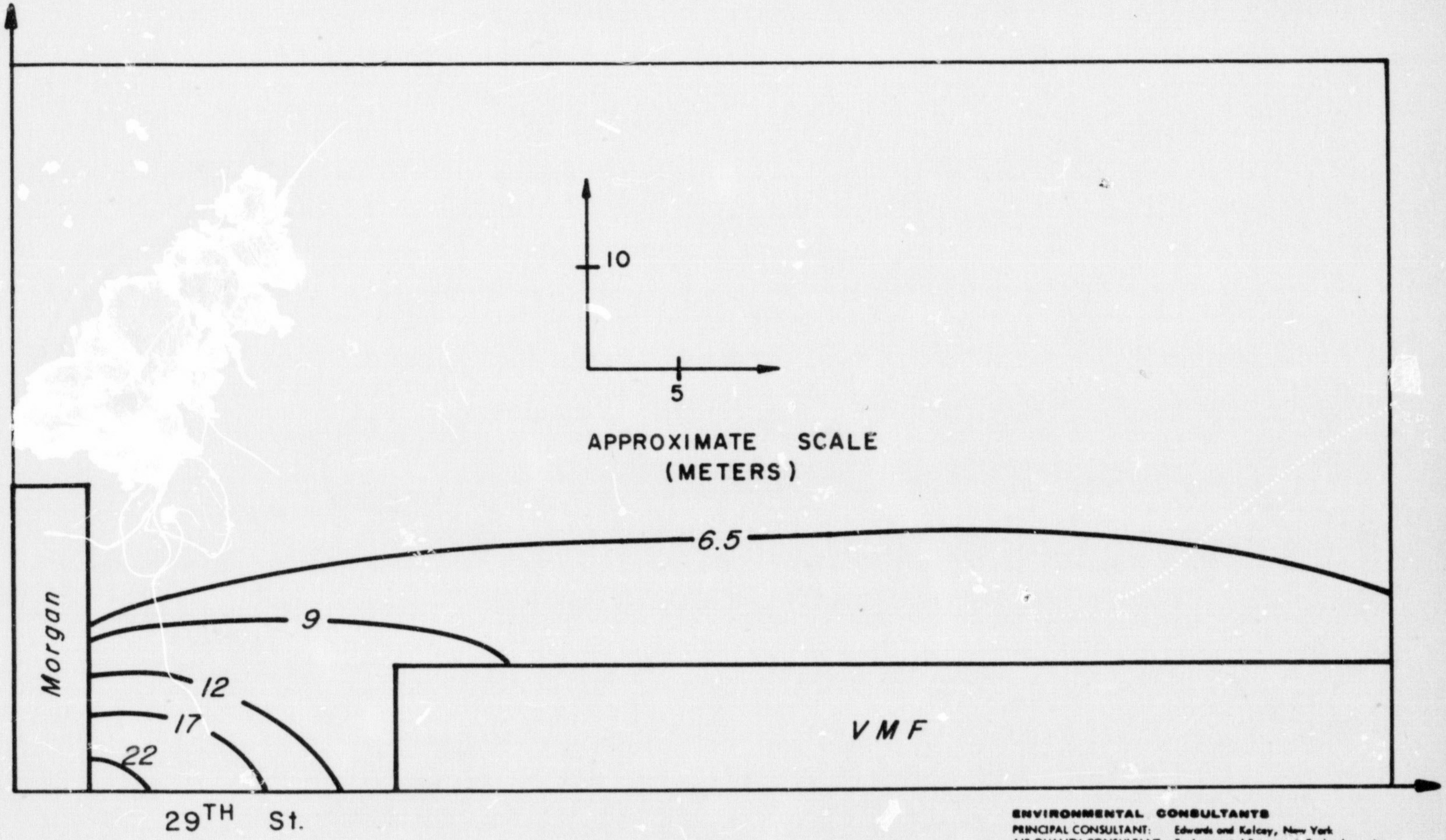
29th STREET FACE OF VMF

* Worst Case 1-Hour CO Concentrations Including estimated 6.5 PPM background

ENVIRONMENTAL CONSULTANTS

PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure III - 2



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PROJECTED CO CONCENTRATIONS*
ON 29th STREET and VMF ROOF

* 1980 Worst Case 1-Hour CO Concentration (PPM)

Figure III - 3

Table III-6

WORST CASE CO CONCENTRATIONS
OUTSIDE AND INSIDE TOWER HOUSING UNIT

Height (ft.) Above Street Level	CO Concentration (ppm)	
	Outside	Inside
30	16	N.A.
50	15	N.A.
150	14	15
230	8	10
320	9	14

N.A. - Not applicable, below lowest housing unit level.

Concentrations averaged over eight hours must be compared to the 9 ppm standard. The highest weekday traffic volumes on streets near the VMF occur on Ninth Avenue between 28th and 29th Streets. An average 8-hourly traffic volume of 1500 vehicles per hour will generate an average street level CO concentration of 4 ppm, excluding background. This again assumes adverse meteorological conditions. Table III-7 depicts the resulting eight-hour CO concentrations with height outside and inside the tower housing on Ninth Avenue. These values are all below the eight-hour National Air Quality Standard of 9 ppm. Eighty-five percent of the CO levels is a result of city background.

In summary, the air rights housing units and the VMF air intakes will not be exposed to carbon monoxide concentrations exceeding the one and eight-hour standards.

A.2.(c) Analysis of the Impact of the VMF Exhaust Vent Emissions

This section describes the air quality impact within the study area resulting from VMF exhaust vent emissions. Two receptor categories are considered in this analysis:

(1) Impact on external critical receptors; and

(2) Impact on the air rights housing portion of the project including the air intake vents of the VMF and air conditioning units in the upper floors of the towers.

Four critical receptors are identified from the criteria shown below. For each of these receptors there is no significant change in exposure to the motor vehicle pollutants due to traffic changes resulting from operation of the vehicle maintenance facility. Expected concentrations at all critical receptor sites will be approximately the same as those concentrations in 1980 without the VMF.

Critical Receptor	Reason for Choice
Morgan Station	Proximity to VMF
Penn Station South Apartment at the S.E. corner of 29th Street and Ninth Avenue	Proximity to vehicle maintenance facility. (Other apartment buildings of the same height are in the complex but all of these are further from the VMF and therefore experience less impact.)
French Hospital on 29th Street	Possible sensitive individuals at this site.
Lower West Side District Center and P.S. 33	Possible sensitive individuals at these sites.

Table III-7

EIGHT-HOUR CO CONCENTRATIONS
OUTSIDE AND INSIDE TOWER HOUSING UNIT

Height (ft.) Above Street Level	CO Concentration (ppm)[1]	
	Outside	Inside
30	6.8	N.A.
50	6.4	N.A.
150	5.6	6.4
230	3.4	4.3
320	3.8	6.0

(1) Including 5.8 ppm background.

N.A. - Not applicable, below lowest housing unit level.

The housing portion of the project will be completely sealed from the garage. Pollutants can enter the apartments through open windows, air conditioning ducts or sleeves, or other apertures. Impacts of the exhaust vent emissions are considered for air conditioning units in the upper floor apartments and the recreational area on the roof of the VMF.

The entire VMF building will be ventilated with exhaust stacks on top of the air rights structure, approximately 320 feet above street level. Pollutant emissions in the building exhaust will arise from three principal sources:

(1) Vehicle movements during the 5-8 A.M. peak. During this time a large number of vehicles may be operating within the structure;

(2) Vehicles maneuvering within the building during any hour of the day; and

(3) Vehicles being serviced within the facility. For vehicles being serviced there will be flexible hose connections which will carry tailpipe exhaust directly into exhaust vents.

The building exhaust system will be equipped with automatic controls, with full ventilating capacity to be reached whenever a carbon monoxide level of 100 ppm is reached at any monitoring point within the building. This high concentration level should occur, if at all, only during the 5-8 A.M. time period.

The impact of the exhaust venting on external critical receptors is completely negligible as the venting stacks are at least 100 feet higher than the top of all external buildings in the area. However, since both VMF air rights apartment towers are the same height, the potential effects of horizontal exhaust venting in the direction of the opposite apartment tower on CO concentrations were studied. Under certain meteorological conditions with an exhaust vent CO concentration of 100 ppm, temporary concentrations at the outside of the upper two floors of the opposite tower as high as 47 ppm could result. However, the study indicated that the probability of the persistence of atmospheric conditions necessary for such concentrations is small - approximately 0.003, and that CO concentrations of 100 ppm in the exhaust are highly unlikely. Thus, the contravention of the one-hour CO standard would not likely occur. To avoid any potential problem, however, the venting system is to be designed to vent only in directions away from the opposite apartment tower. Calculations indicate that this horizontal venting arrangement would not exceed 33 ppm CO under the same improbable combination of adverse meteorological and exhaust emissions conditions.

The impact of the VMF exhaust is also acceptable during downwash conditions. Maximum CO concentrations will be lower than 11 ppm at all receptors. Generally, the exhaust leaving the vents will contain less than 15 ppm of carbon monoxide; and, hence, the resulting ambient concentrations will be similarly low.

A.2.(d) Analysis of the Impact of the VMF Exhaust Vent Emissions Prior to the Construction of the Housing Towers

Because of normal construction staging, the VMF will likely be completed prior to the housing portion and will commence operation immediately following completion. As a result VMF exhaust emissions will be temporarily exhausted at VMF roof level, i.e., 60-80 feet above grade.

A temporary sheet metal (or other similar material) tunnel will direct the ventilated air from the exhaust outlet toward the center of the roof. If this tunnel extends to less than 250 feet from the air intake, the impact of the CO emissions will be acceptable. The maximum concentration at the intake will then be 6 ppm, excluding background, when the evacuated air contains 100 ppm of carbon monoxide. This level will be less than 5 ppm during normal VMF operations.

The impact this source will have on the surrounding streets will also be acceptable. The estimated maximum contribution to CO values on 29th Street will be 13 ppm, excluding background, under appropriate meteorological conditions and again assuming 100 ppm of CO in the ventilated air. The similar contribution on 28th Street will be 5 ppm.

A.2.(e) Analysis of the Air Quality inside the VMF

This section demonstrates the effects vehicular pollutant emissions will have upon occupational exposure within the maintenance facility itself. To determine these effects the following items were considered:

(1) Allowable occupational exposure levels.

(2) Ambient outside pollution concentrations at the air intake.

(3) Vehicular emission rates for 1970.

(4) Vehicle movements within the garage.

The National Institute for Occupational Safety and Health (NIOSH) promulgated the following carbon monoxide standards. CO concentrations are not to exceed 35 ppm averaged over an eight-hour period

nor to exceed 200 ppm as a maximum instantaneous concentration. These standards were accepted as the design criteria for the ventilation system of the facility.

For the purpose of analyzing occupational exposure levels, vehicle emissions are based on 1970 emission factors as a conservative estimate. Under normal traffic flow, the indoor carbon monoxide exposure will be well below the NIOSH standards, using the minimum dilution amounts of 400,000 cfm ventilation. The maximum CO concentration is expected to occur during 6-7 A.M. peak vehicle operations. This maximum concentration is 27 ppm, including background.

To assure the best possible environmental conditions within the garage the exhaust ventilation system will double its normal exhaust rate during emergency traffic conditions. Thus, the ventilation system will have the capability of maintaining better than acceptable air quality within the VMF. The indoor exposure analysis also indicates that the "design" level accumulation of 100 ppm CO (see Section A.2.(c)) in the ventilation system is unlikely.

A.2.(f) Non-Methane Hydrocarbons and Oxides of Nitrogen

The National Air Quality Standard for hydrocarbons has been established to achieve the photochemical oxidant standard. Hydrocarbon and nitrogen oxide concentrations in urban areas are commonly found to exceed standards. Although the concentrations do exceed standards, a sufficient reduction in regional emissions should reduce oxidant levels such that the oxidant standard is achieved. The New York State Implementation Plan indicates that a 60 percent reduction in hydrocarbon emissions would be necessary to meet the oxidant standards.

The 1980 6-9 A.M. HC background is projected to be 0.22 ppm (see Appendix C, Section C.3), as compared to the Federal standard of 0.24 ppm (see Table II-2). On all streets in the VMF study area, traffic volume during the 6-9 A.M. period will be heavy enough to generate 0.02 ppm HC levels. These traffic contributions plus background will give concentrations above the standard. Furthermore, calculations of hydrocarbon emissions for 1980 in the study area, relative to 1972, show a 50 percent reduction for the A.M. peak and a 55 percent reduction for the P.M. peak. Thus, the 60 percent reduction required to achieve oxidant levels below the standard would be approached but not attained in the study area.

Anticipated roll-back for nitrogen oxide levels is not expected to be successful in bringing levels within the annual average standard. The present 0.14 ppm annual average estimated is comprised of 0.08 ppm from motor vehicle emissions in midtown Manhattan and 0.06 ppm

from stationary sources. The stationary source contribution is anticipated to be reduced to 0.04 ppm by various control strategies. Estimates developed for 1980 vehicular NO_X emissions in the study area are 52 percent of 1972 values for the A.M. period and 47 percent for the P.M. period. An average value of 50 percent reduction would still yield a total of 0.08 ppm for the annual average in the study area, which exceeds the 0.05 ppm annual average standard.

In short, the impact of the VMF on HC and NO_X emissions is threefold:

(1) Daily postal heavy-duty vehicle emissions are substantially reduced.

(2) Diversion of 400 vehicles to 31st, 33rd, and 34th Streets during midday hours could increase total emissions on these streets by as much as 27 percent. With parking restrictions enforced, the change in emissions with the diverted vehicles would be negligible.

(3) In the fifteen-block study area the impact of the VMF is negligible. However, the contravention of the HC and NO_X standards, regardless of the construction of the VMF, is likely on these streets.

A.3 NOISE ENVIRONMENT

A.3.(a) Impact of VMF Operations

Criteria set forth in an NCHRP report* were used in evaluating the impact of changes in the volume, composition, and pattern of street traffic caused by project development, as follows:

Assessment	Increase in L_{10}	Comment
No impact	less than 6 dBA	very little comment or individual reaction expected.
Some impact	6 to 15 dBA	some individual comment expected, but no group action likely.
Great impact	above 15 dBA	strong individual comment and group action expected.

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*Highway Noise: A Design Guide for Highway Engineers, National Cooperative Highway Research Program (NCHRP) Report 117, 1971.

These assessment criteria result from studies which indicate widely varying public response to changes in sound level. The NCHRP report states that "when the new noise source is broadband in nature, as in the case of traffic noise, with no time or frequency characteristics that clearly identify it, the intruding levels can be higher relative to the ambient than if the new noise source....contains pure-tone components or has intermittent time properties." In the case of the project area, background or ambient noise is traffic related and thus an increase of, say, 5 dBA of noise having the same character would not be as noticeable as the introduction of a different type of noise (e.g., an industrial operation) 5 dBA above ambient. The NCHRP criteria are therefore held to be adequate descriptors of human response to increased traffic noise.

To understand the impacts of increases in noise levels, the following relationships are helpful:

(1) A one dBA increase in the ambient level cannot be identified in the field.

(2) A three dBA increase is considered just noticeable in the field.

(3) A ten dBA increase would be subjectively heard as an approximate doubling in loudness.

Traffic changes generated by the proposed VMF will result in a NO IMPACT condition in the area, using the NCHRP criteria. Increases in ambient street noise levels will generally not exceed 1-3 dBA. The closure of 29th Street between the VMF and the Morgan Station PMC to non-postal traffic will have the effect of reducing ambient noise levels by a few dBA between Eighth and Ninth Avenues.

Impact of VMF operations on the air rights housing portion of the project is related to one or all of three factors: changes in ambient street noise, VMF vehicle operations on 29th Street, and operations internal to the VMF. Changes in ambient street noises fall into the NO IMPACT category. Potential noise and vibrations from VMF internal operations, machinery, etc. will be solved in the design and soundproofing of the structure.

A.3.(b) Early Morning-Late Evening Impacts due to PMC-VMF Operations

Normal sleep periods critical for the assessment of VMF-PMC traffic noise impacts are 5-7 A.M. and 10 P.M.-12 A.M. The former corresponds to the period of greatest total postal vehicle activity, the latter, due to proposed rescheduling of movements from the evening rush hour, to the period of peak heavy-duty truck traffic (see Table I-1 of Statement and Table B-3 of Appendix B).

A measurement program to record existing ambient conditions by hour of the day was conducted from June 7-8, 1973. This program and detailed findings are described and presented in Appendix E. Measurements were taken to represent the general residential neighborhood at P.S. 33 and the nearest Penn Station South Houses apartment building between 28th and 29th Streets on Ninth Avenue.

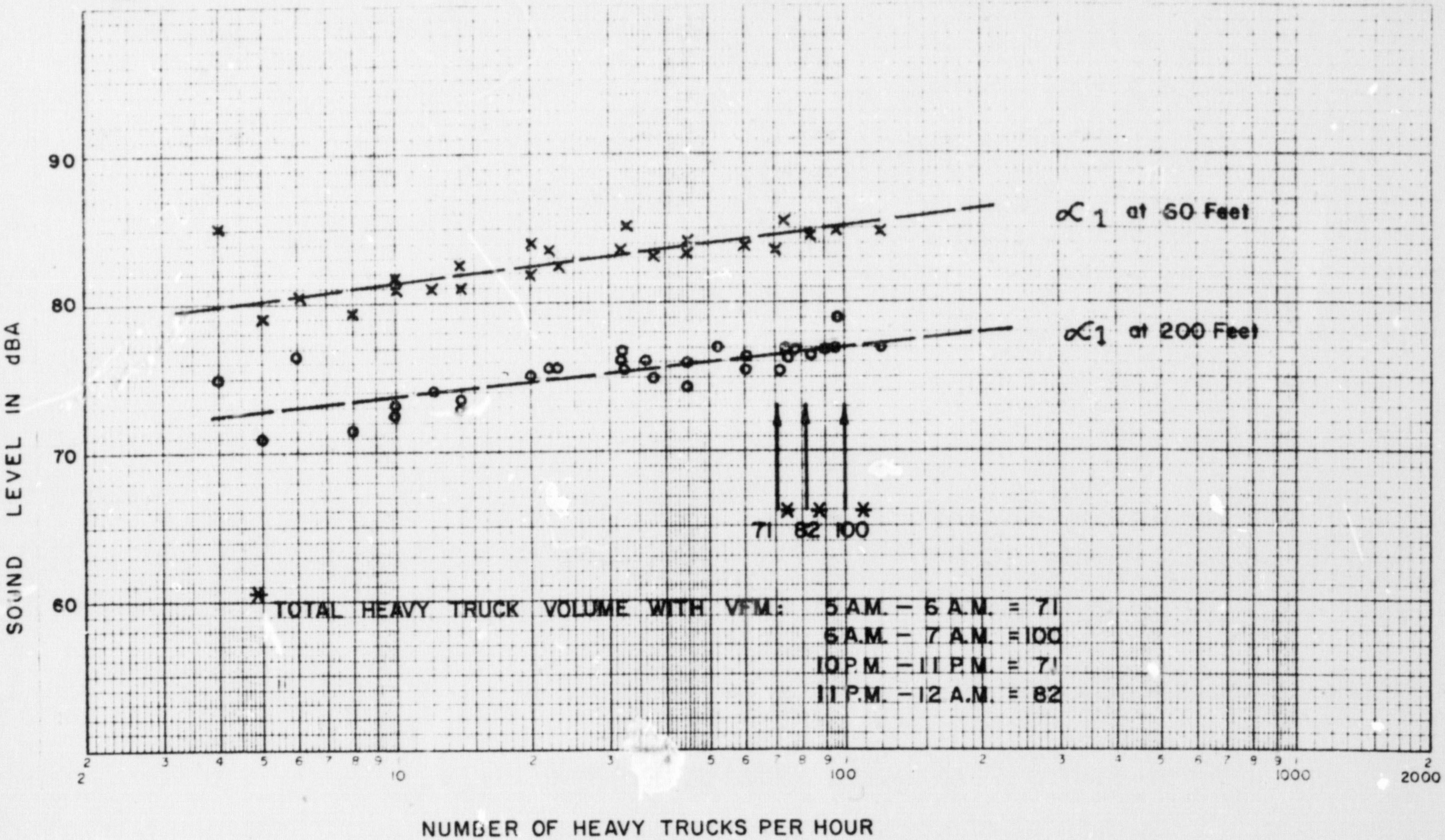
Figures III-4 and III-5 show relationships between traffic noise expressed in L_1 and L_{10} dBA, defined in Section II.D, and heavy truck traffic on Ninth Avenue at 60 feet from the street source (P.S. 33 measurement station) and 200 feet from the street source (Penn Station South apartment building). These graphed relationships have been derived from noise measurements taken over a 24-hour period at these two locations (for detailed data see Tables E-2 and E-3 of Appendix E).

Measured L_1 and L_{10} sound levels for these locations during the early morning and late evening periods are as follows:

Time Period	60 Feet from Source (P.S. 33)		200 Feet from Source (Penn Station South)	
	L_1	L_{10}	L_1	L_{10}
5 A.M.-6 A.M.	85	75.5	75.5	68
6 A.M.-7 A.M.	85.5	78.5	77	71
10 P.M.-11 P.M.	79	73	71	66
11 P.M.-12 A.M.	81	73.5	74	66.5

During these same early morning and late evening hours, combined VMF-PMC heavy truck movements in and out of 29th Street are scheduled to total 76, 57, 131 and 140 during the four respective periods, approximately half of these numbers using Ninth Avenue and half using Tenth Avenue (see Table B-3 of Appendix B for data from which these figures are derived). Adding these to present heavy truck volume on Ninth Avenue, total heavy truck volumes are estimated at 71, 100, 71, and 82, respectively, for the four periods (see Table E-2 of Appendix E for Ninth Avenue truck counts). Projected L_1 and L_{10} noise levels, reflecting the addition of VMF-PMC heavy truck traffic, may then be determined from Figures III-4 and III-5.

Time Period	60 Feet from Source (P.S. 33)		200 Feet from Source (Penn Station South)	
	L_1	L_{10}	L_1	L_{10}
5 A.M.-6 A.M.	84.5	79	76.5	72.5
6 A.M.-7 A.M.	85	79.5	77	73
10 P.M.-11 P.M.	84.5	79	76.5	72.5
11 P.M.-12 A.M.	85	79	77	73

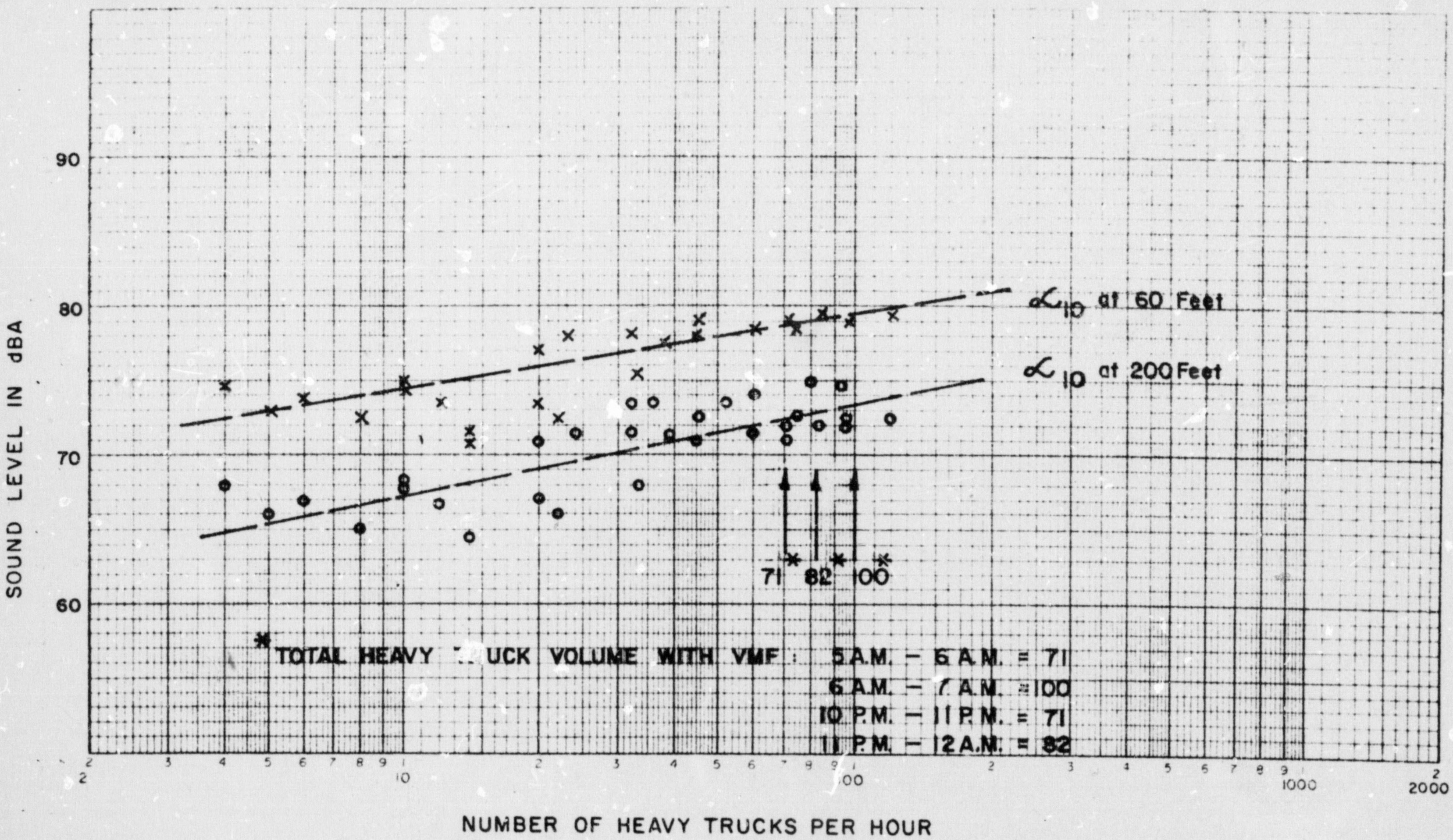


HEAVY TRUCK TRAFFIC VS. L_1 SOUND LEVELS

ENVIRONMENTAL CONSULTANTS

PRINCIPAL CONSULTANT	Edwards and Kelcey, New York
AIR QUALITY CONSULTANT	Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT	Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure III – 4



HEAVY TRUCK TRAFFIC VS. L_{10} SOUND LEVELS

ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure III – 5

For the 5 A.M.-7 A.M. periods a comparison between present measured and projected noise levels shows that the L_1 is not expected to increase by more than 1 dBA, while the L_{10} might increase by up to 4-5 dBA. According to NCHRP Report No. 117 criteria, such changes are categorized as NO IMPACT.

Between 10 P.M. and 12 A.M., similar comparisons show a 3-5.5 dBA increase in L_1 and a 5.5-6.5 increase in L_{10} noise levels, a borderline NO IMPACT - SOME IMPACT condition. The proposed evening rush hour rescheduling, consistent with after hours movement strategies of the air quality implementation plan, should thus produce no significant changes in late evening noise levels. However, the hours of proposed rescheduling are sufficiently flexible such that should the increases be found undesirable, further adjustments will be made. Analysis indicates that a further shift of approximately 40 movements per hour from 10 P.M.-12 A.M. ahead to the hours of 7 P.M. to 9 P.M. would provide a NO IMPACT late evening condition without a noticeable change in 7 P.M.-9 P.M. noise levels.

A.3.(c) Impact of Ambient Noise Levels on the Air Rights Housing Project

The U.S. Department of Housing and Urban Development (HUD) has established interim noise exposure standards for new construction sites. The HUD Transmittal 1390.2* establishes four categories of General External Exposures which are defined by a maximum allowable time (in hours or minutes) that a particular noise level can be exceeded (in dBA, or decibels on the A-weighted scale).

These categories are:

(1) Unacceptable: noise level exceeds 80 dBA for 60 minutes per 24 hours or noise level exceeds 75 dBA for 8 hours per 24 hours

(Exemptions are strongly discouraged and require the HUD Secretary's approval.)

(2) Discretionary - Normally Unacceptable: noise level exceeds 65 dBA for 8 hours per 24 hours or loud repetitive sound on site

(Approvals require noise attenuation measures and the HUD Regional Administrator's concurrence.)

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*Hud Department Circular 1390.2, "Noise Abatement and Control: Department Policy, Implementation Responsibilities, and Standards", August 4, 1971, Change 1, September 1, 1971.

(3) Discretionary - Normally Acceptable: noise level does not exceed 65 dBA more than 8 hours per 24 hours

(4) Acceptable: does not exceed 45 dBA more than 30 minutes per 24 hours

Since the breaking point between "Discretionary - Normally Unacceptable" and "Normally Acceptable" is whether or not 65 dBA is exceeded for more than 8 hours per 24 hours, special interest was given to this determination.

Figure II-7 shows that the measurement locations on the roofs of Public School 33 and the Penn Station South Houses both fall into the category "Normally Unacceptable" as defined by HUD transmittal 1390.2. In the proposed housing project, the closest apartments will be approximately 80 feet from what can be termed the "single-lane-equivalent", which is defined as that imaginary lane on which the total traffic flow can be assumed located to be acoustically identical to the real-life situation.* Comparable single-lane-equivalent distances for measurement locations at Public School 33 and the Penn Station South Houses were 60 feet and 200 feet, respectively. Since many apartment units of the air rights towers fall within the distances for measurement locations at Public School 33 and the Penn Station South Houses, the classification for the proposed air rights apartment towers would also be "Normally Unacceptable".

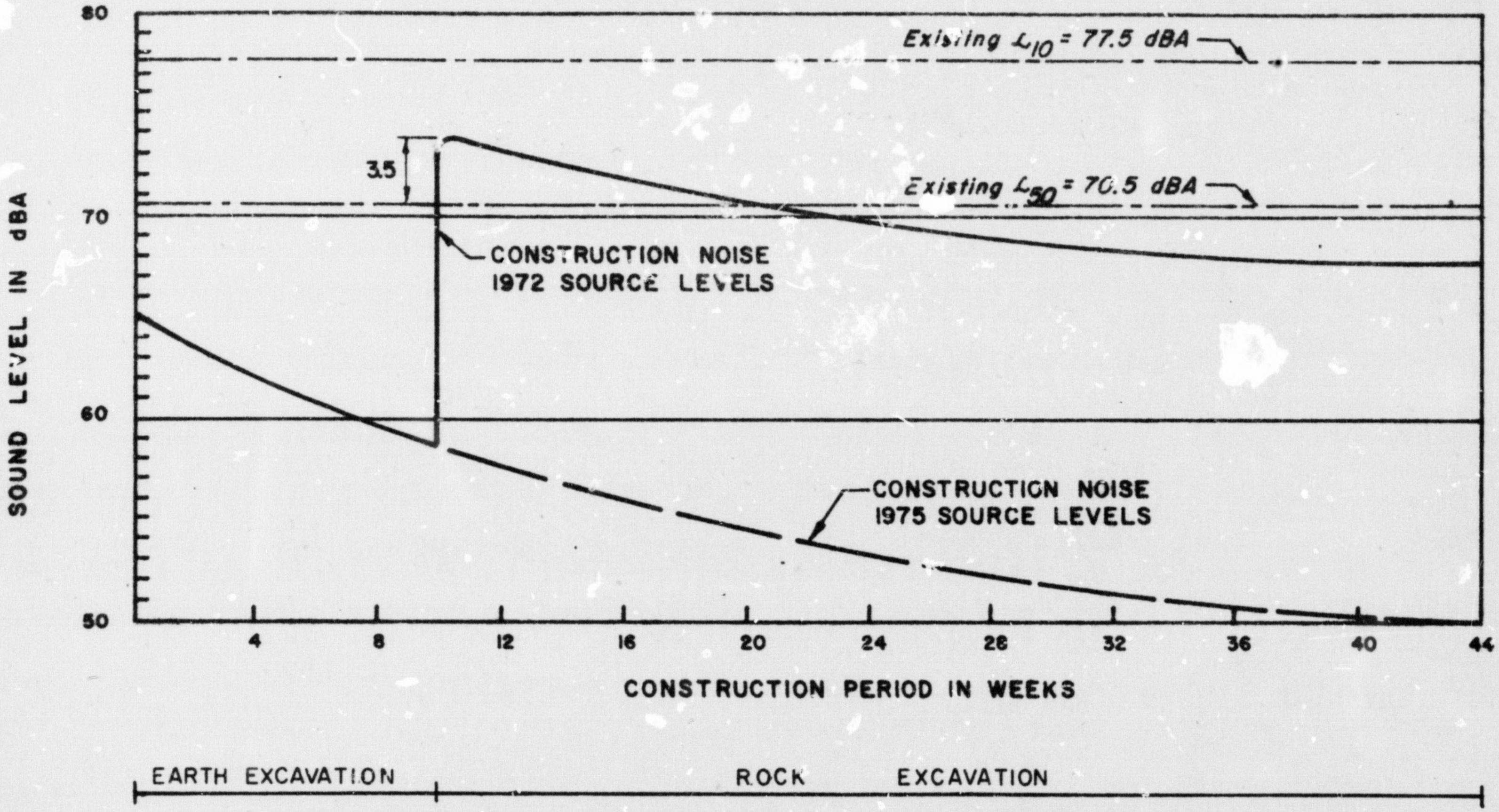
To provide satisfactory interior noise levels, therefore, the facades of the towers facing Ninth and Tenth Avenues are to be constructed with double windows and air conditioning, in addition to the small attenuation provided by a 15-foot setback on the avenues from the VMF roof.

A.3.(d) Noise During Construction

Noise during construction is expected to be most significant during excavation. During the rock excavation stage, noise levels near the site are expected to be higher than during other stages. This is due, in part, to the expected continuous operation of many pieces of equipment such as rock drills and jack hammers which produce relatively high noise levels. The U.S. General Services Administration has adopted two sets of noise limits for construction equipment from a U.S. EPA report**, one set went into effect starting July 1, 1972, and the other set of lower noise limits is to go into

*Highway Noise: A Design Guide for Highway Engineers; NCHRP Report 117.

**Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances; NTID 300.1; U.S. Environmental Protection Agency; 12/31/71.



PROJECTED SOUND LEVELS AT P.S.33 DURING CONSTRUCTION

ENVIRONMENTAL CONSULTANTS

PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure III-6

effect on January 1, 1975. Using these and applicable NYC noise code limits as source levels, noise levels near the site were predicted by use of a computer model. Resultant noise level contour maps are included in Section E.4 of Appendix E, along with a description of the methodology and assumptions used in the calculations.

Based on the computer noise level projections and an estimated construction timetable, potential construction impacts on Public School 33 were assessed as representing the most critical nearby receptor.

Figure III-6 shows a time-history of the noise level at the school as the construction progresses. Also shown are the L_{10} and L_{50} noise levels measured outside the school on June 8, 1973. It can be seen that construction noise (using 1972 source level limits) will exceed the ambient noise (average traffic generated noise) for a period of about 10 weeks by at most 3.5 dBA, while the construction generated noise level will be below the L_{50} for the remainder of the construction period.

The increased truck traffic on the city streets due to the earth and rock removing operation has been evaluated with respect to noise, and it is not expected to have any effect on the area. An estimated 230 truckloads of excavation are expected to leave the site daily. The addition of approximately 30 earth-carrying trucks per hour to the present traffic on the existing streets will not significantly raise either the existing L_{10} or L_1 noise level.

With respect to blasting, the only readily available criteria are concerned with structural damage, and not annoyance. Some criteria developed to prevent structure damage in blasting areas has been reported by the U.S. Bureau of Mines in their Bulletin #656, "Blasting Vibrations and Their Effects on Structures". In the Summary of this report, it is stated that for a vibration velocity not to exceed 2 in/sec., $D/\sqrt{E}$ should not exceed 50, where D is the distance from the blasting area to the nearest structure in feet, and E is the explosive weight per delay in pounds.

A.4 URBAN FORM

The combined VMF-housing project represents a compatible transitional use between commercial- and transportation-related activities generally north of 29th Street and the residential area south and east of 28th Street, and will act to stabilize the boundary between disparate residential and non-residential districts. The proposed project is more in keeping with the community than development which might occur under current commercial-light manufacturing zoning policy for the site.

No significant land use changes in the vicinity are expected to occur as a result of project development. One minor exception is a potential increase in the tendency for conversion of older residential properties to off-street parking areas. This would result from that segment of VMF employees not using public transit. This conversion process has been an obvious source of housing displacement in the area during recent years.

Development will eliminate the visually incongruous present condition of the site resulting from the parking of postal tractor units, trucks, and employee autos on the site.

A.5 SOCIO-ECONOMIC CONDITIONS

A.5.(a) Impacts on the Social Environment

The most significant impact of the project is the positive response it provides to a pressing and obvious need for low- and moderate-income housing in the Chelsea community.

The City Planning Commission recommends rezoning the entire site C6-4, treating the VMF portion of the project as an accessory use to Morgan Station, while permitting high density, multi-story residential development. The project provides for 864 apartment units in two 28-story towers and two low-rise clusters. The number of units related to site size is within the density allowable under City R-8 zoning. Thus, the apartment component of the project is compatible with adjacent public and cooperative housing projects which fall within R-8 district.

In all housing environments, but particularly in low- and moderate-income projects, high densities often adversely affect the social climate. Recent research has indicated a strong correlation between project size, height and design and the incidence of crime.* Project design should reflect this emerging body of research to the extent practicable.

Design of the proposed project is such that the "ground level" housing project ranges from 60 to 80 feet above street level. While this separation may provide a measure of internal security, important opportunities for social interaction at street level are curtailed.

A.5.(b) Economic Impacts

Construction and in-operation activities of the VMF represent a potential but minor source of jobs for area residents. Most of the 300

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*Oscar Newman, Defensible Space, Crime Prevention through Urban Design, 1972.

based employees of the VMF and 1,200 drivers will come from existing postal facilities being replaced by the project.

This employment base will, however, provide an expanded local market for retail trade and services. In addition, the housing portion of the project will increase by nine (9) percent the number of housing units in the four census tracts identified in Section II.E., giving an added boost to this local market.

Economic linkages between industrial areas to the east and west of the community do not appear to be well developed. Closure of 29th Street to non-postal traffic, including commercial vehicles, is not expected to have a significant impact in this aspect.

Project development will cause a loss of potential tax ratables to the City. The site is currently assessed at $1,500,000 and is tax exempt. The VMF, when built, will be tax exempt and the housing development will be subject to tax abatement which could run to a full tax exemption for public housing, or to 90 percent exemption with FHA 236 financing.

A.5.(c) Impact on Community Services

From statistics of the City Planning Commission (CPC) relating school age population to various types of subsidized housing, estimates of the school age population generated by the proposed air rights housing project have been made. These estimates reflect the housing mix proposed by the City's Housing and Development Administration (HDA) of 60 percent moderate income, 30 percent low income public housing, and 10 percent senior citizens housing. CPC studies indicate that the number of school age children peaks in the sixth year of project occupancy. The project's proposed 864 dwelling units will generate an estimated 794 school age children at sixth year of occupancy, distributed as follows:

Grade	Number
PK-5	453
6-9	193
10-12	148

These grade groupings correspond with those of schools serving the project site P.S. 33, I.S. 70, and the Charles Evans Hughes H.S. Assuming the entire school age population attends these public schools, impact will range from no impact (within available capacity) to slightly in excess of capacity in the case of P.S. 33, as shown on Table III-8. This analysis, however, does not account for the probability that some small amount of the school age population will attend parochial schools in the area. Detailed estimates of school population and impact on public schools are presented in Appendix A.

Table III-8

PROJECT IMPACT ON SCHOOL UTILIZATION(1)

	Existing	With Housing Project(2)
P.S. 33	57	104
I.S. 70	81	92
C.E. Hughes H.S.	83	83

(1) Enrollment as percentage of capacity
(2) Sixth year of occupancy (highest year of school population).

Discussions indicate that increased area population will not adversely impact the capabilities of the Lower West Side District Health Center. Programs can expand to absorb additional demands.

Some impact on Chelsea Park in terms of increased usage can be anticipated, with nearly 800 new children and youth of school age in the neighborhood, in addition to many senior citizens. Any such impact is not regarded as particularly significant, for two basic reasons:

(1) Recreation space and some facilities will be included in the proposed air rights project.

(2) A major user of Chelsea Park - the youth population - has diminished in numbers of the past decade, i.e., an approximate 12 percent drop in the 5-19 age group in the four census tracts between 1960 and 1970.

A.6 INFRASTRUCTURE AND OTHER

Impacts of project service requirements on utility systems serving the area were discussed with City agencies and the Con Edison Company. Conclusions are summarized below along with a discussion of related "other" concerns.

A.6.(a) City of New York Facilities

Existing water mains will be able to sustain the project's needs and proposed connections will impose no detrimental effect on the existing water supply in the adjacent streets or the surrounding community.

Separate storm and sanitary systems will be provided within the building, with complete and separate systems for the VMF and the

housing complex. The garage floor drainage system will include equipment to intercept and collect industrial wastes (e.g., crank case oil) for separate disposal. Combined sanitary and storm sewers in 28th and 29th Streets have the capacity to accept the additional flow. With the industrial waste separators, no detrimental effects on these sewers nor on other sewage disposal lines in the immediate area are envisioned.

A.6.(b) Con Edison Facilities

Electric power, steam, and gas services will be supplied by Con Edison. Project requirements will not adversely affect services to the surrounding community.

A.6.(c) Other

West 29th Street is to be made available at all times for use, when required, by police, fire, ambulance and other emergency vehicles. The structure is designed and equipped to conform with OSHA standards, with fire protection requirements of the City Building Code and National Fire Protection Association standards and to fulfill Fire Department requirements for fire fighting.

Junk rooms will be provided in the VMF for collection of body drop and maintenance waste materials. Waste oil from the floor drain separator and drained from truck crank cases will be collected in waste oil tanks. These wastes will be picked up within the facility and trucked from the site for proper disposal. Lunch rooms and recreation areas in the VMF will be provided with small waste compactor units to facilitate collection and handling.

Solid wastes from the apartment houses will be compacted using conventional residential compactor units similar to those found in other New York City housing developments. The main collection and compactor rooms will be located at the street level base of each of the housing towers, with additional compactor rooms on the VMF roof to serve the low rise units. Compacted wastes from the latter will be transferred to the main compactor rooms, where all compacted wastes are to be collected and picked up from within the building through service bays accessed via Ninth and Tenth Avenues.

No adverse impacts on subsurface conditions or geologically related engineering problems are anticipated. An underfloor drainage system and structural waterproofing will seal the building against ground water penetration and divert horizontal ground water flow around the structure. Such procedure is common in New York City and is expected to have no adverse impact.

B. ASSESSMENT OF TRADE-OFFS

Trade-offs relate to the adverse consequences which a party or community will accept in return for the benefits associated with a given action. As examples, trade-offs can include increased costs to a project sponsor in maximizing environmental compatibility in return for community approval or the environmental disruption which the community is willing to accept in return for improved services.

In this instance, trade-offs apply to both the Postal Service and the community. To the Postal Service, the design of the VMF to support air rights housing and an accommodation of non-postal traffic on 29th Street during the P.M. peak period, with an attendant loss of security and interference with postal operations, are trade-offs against the efficiency and improved operational environment gained from developing the VMF at the proposed location. To the community, the opportunity which the VMF project offers as an answer to the low- and moderate-income housing shortage in the area must be viewed against impacts attendant with construction and operation of the proposed project.

It is impossible, even if it were appropriate, to find a common denominator to the disparate views and widely ranging environmental issues which enter into decision making. Each party participating in the outcome of the proposed project--Postal Service, government agencies, and the affected public--will assign its own weights and values to adverse and beneficial effects of project development. There are no absolute weights or values which can be applied to arrive at a quantitative basis of decision making. Rather, the net effect of the project can be only qualitatively assessed.

In terms of adverse consequences, the project will require the diversion of vehicles now using 29th Street to other heavily used streets. Construction activity will increase noise levels temporarily in the area. Existing community services (schools, park, health center) would be called upon to respond to greater demand resulting from some 860 additional housing units. Social problems attendant with urban population density may be aggravated with the introduction of this potential new source of relatively high density housing. Many of the adverse effects enumerated in Section III.A, including those mentioned above, can be minimized or remedied through actions identified in Section III.C of this Statement.

With respect to beneficial consequences, Postal Service operations will be made more efficient and working conditions more favorable for employees by implementing the proposed action. An unsightly, under-productive use of a valuable urban land resource would be eliminated. Construction and in-operation activities may offer

local employment potentials, with employment and payrolls contributing support to local business activity. Most importantly, the proposed project is a response to a pressing local housing need, to which the community readily admits.

It is the conclusion of this Statement that the net effect of project development is positive, as it represents an improvement of Postal Service operations as well as a much needed source of low- and moderate-income housing for the Chelsea-Clinton community.

C. PRECAUTIONARY AND REMEDIAL MEASURES TO MITIGATE ADVERSE IMPACTS

Many of the potentially adverse impacts of project construction and operation can be prevented or minimized through appropriate precautions, design modifications, site development procedures, and/or adjustments of operations suggested herein by issue area.

C.1 TRAFFIC CIRCULATION

Enforcement of existing parking restrictions on 31st and 33rd Streets to accommodate the diversion of non-postal traffic from 29th Street will alleviate the most significant potential source of negative traffic impact. Such measures and their effects have been previously described in Sections III.A.1(d) and III.A.2.(a).

Under the proposed operation of presently westbound-only 29th Street, postal vehicles will have two-directional use and non-postal traffic will be restricted except from 4:30 to 6:30 P.M. To avoid any potential confusion for motorists and pedestrians, the Postal Service is to provide all necessary signs, barriers, pavement markings, and other traffic control devices necessary for the safe use and operation of the street. Such controls are to be developed in consultation with the Police and Traffic Departments of the City.

Minimal diversions to 25th Street have been projected, reflecting the present northerly orientation of 29th Street traffic, the partial closure of 25th Street as a play street, and the general undesirability of additional traffic on a primarily residential street. Protective measures, however, should be taken, including:

- Adequate provision for accommodating additional traffic on 31st and 33rd Streets as previously described.
- Adequate signing of the preferred alternate routes, including 23rd Street as a preferred alternate south of 29th Street.

Concise, uniform signing of alternate routes and off-peak 29th Street restrictions will also serve to minimize the potential hazard due to motorists unfamiliar with the special flow conditions.

Some interference with normal operating conditions will undoubtedly occur during the construction period. Often a major flow restriction is caused by the overspill of construction equipment and temporary safety barriers into streets adjacent to a construction site. At the VMF site, effects of such overspill can be minimized by temporary imposition of parking restrictions on 28th Street and adequate enforcement of remaining existing regulations. Restriction of hauling and delivery operations to non-peak periods, where possible, will also serve to reduce traffic interference.

C.2 AIR QUALITY

C.2.(a) Diversion of Traffic to 31st, 33rd, and 34th Streets

Enforcement of existing parking restrictions on 31st and 33rd Streets to accommodate the diversion of non-postal traffic from 29th Street without an increase in traffic congestion will minimize the impact on air quality. While CO and HC emissions on 33rd Street would still increase approximately 25 percent over comparable emissions with present traffic volumes, total emissions for the three streets would not significantly change and CO concentrations on each street are expected to be well within ambient standards, as described in Section III.A.2.(a).

C.3 NOISE ENVIRONMENT

C.3.(a) Reduction of Ambient Noise Levels for the Air Rights Housing Project

The potential impact of ambient street noise can be minimized through special facade constructions, as discussed in Section III.A.3.(c), so as to meet Department of Housing and Urban Development requirements for new housing construction.

C.3.(b) Construction Noise

It is recommended that noise limit criteria used by the U.S. General Services Administration, based on U.S. EPA report describing the abatement potential for various types of construction equipment*, be applied to the VMF and housing project, wherever New York City noise control code standards are absent. As described in

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*Noise from Construction Equipment and Operations, Building Equipment and Home Appliances; NTID 300.1; U.S. Environmental Protection Agency; 12/31/71.

Section II.A.3.(d), no significant impact should result if these and NYC noise limits are followed.

Noise monitoring should be undertaken as a routine part of on-site inspection during construction. The monitoring results would be used to improve procedures for future work as well as to indicate non-compliance with specifications.

C.4 SOCIAL ENVIRONMENT

C.4.(a) Limitation on Project Density

Adverse social implications of high density will be minimized by developing the housing project consistent with R-8 zoning allowances, making it consistent with that of the adjacent residential community.

C.4.(b) Adjustment of School Service Areas

Development reflecting R-8 zoning and the proposed housing occupancy mix should result in school capacities being exceeded only slightly at P.S. 33. With higher densities or a greater percentage of public housing occupancy, excess capacity conditions at P.S. 33 would be exaggerated and I.S. 70 might be overburdened, as well.

C.4.(c) Priorities of Housing Project Tenancy

The Housing and Planning Committee of Community Planning District #4 recommends the following general priorities regarding project tenancy:

(1) People displaced from the project site.

(2) Other lower and moderate income families of Chelsea.

(3) Other lower and moderate income families of Clinton.

The City agency responsible for development and operation of the housing project should strive to meet these priorities to the extent possible.

SECTION IV. ANY ADVERSE EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED

Unavoidable adverse environmental effects are those impacts for which sufficient precautionary and remedial measures (as identified in Section III.C) cannot be taken within the framework of responsibility of any agency or group. These unavoidable effects are summarized by issue area.

A. TRAFFIC IMPACTS

Travel requirements for postal vehicles presently garaged on Leroy Street will be increased, although the increase should have no significant effects on street traffic operations.

B. NOISE ENVIRONMENT

Ambient noise levels in excess of HUD noise standards will adversely impact the quality of the housing environment above the VMF; however special window construction and air conditioning will lower interior noise levels to within standards and thus minimize the impact on the indoor environment. Above standard levels would still be found outdoors but these conditions are common in similar urban environments and are generally tolerated by urban dwellers.

C. SOCIO-ECONOMIC IMPACTS

Employment associated with the VMF may create additional demands for parking in the area, incrementally increasing the pressure for conversion of off-street properties to parking lots. This process is a factor in the housing loss suffered in the Chelsea-Clinton community during recent years.

The combined use of the site will be largely-to-wholly tax exempt depending on the type of public financing used for the air rights housing project (some form of publicly assisted housing is assumed). In a fiscal sense, the project will use public services provided by the City, the cost of which will not be offset by tax revenues.

SECTION V. ALTERNATIVES TO THE PROPOSED ACTION

As part of the Postal Service plan to improve the mail processing and delivery system in the New York City region, the proposed VMF project is judged the most viable of several alternative courses of action. Viability of the proposed action is strengthened in that tangible community needs are reflected in its multi-use concept.

Alternative actions fall into four general categories:

- No action, i.e., continuation of existing postal vehicle maintenance and parking operations.
- Alternative locations for consolidated VMF development.
- Scattered site locations.
- Use of other transportation media for postal goods movement.

In addition, the Postal Service is pursuing maintenance, research and development projects that, while not providing "alternatives" to the proposed project, will help to minimize any adverse effects of postal vehicle travel from the VMF.

A. NO ACTION

A.1 IMPLICATIONS FOR THE POSTAL SERVICE

The no action alternative will commit the Postal Service to the continued reduced level of operational efficiency associated with present scattered and inadequate vehicle maintenance and parking facilities.

A.2 IMPLICATIONS TO THE COMMUNITY

To the community, the proposed VMF site is likely to remain for the foreseeable future as an open parking area for postal trucks and employee autos, until such time as other space is found. Projected operations of Morgan Station as the metropolitan area's main preference mail center (PMC) is likely to make the proposed site all the more resistive to conversion to other uses more compatible with the community. Assuming, however, that it is eventually released for non-postal use, compatibility of development with Chelsea Park and the adjacent residential environment is not assured under existing C6-4 and M1-5 (commercial and light manufacturing) zoning for the site. If returned to private development, the site would again become a tax-producing resource to the City.

In any case, an opportunity to develop needed low- and moderate-income housing on the site would be postponed, in the least, if not lost.

Under this alternative, 29th Street would remain open to traffic. However, vehicle movements associated with Morgan Station's new role in mail goods movement will increase traffic throughout the day between Ninth and Tenth Avenues.

Travel mileage for heavy duty vehicles would remain at higher than proposed conditions, producing a greater overall amount of travel emissions than under the proposed action.

B. ALTERNATIVE CONSOLIDATED VMF LOCATIONS

Postal Service objectives dictate that a consolidated vehicle maintenance and parking facility be located on the West Side near (ideally adjacent to) Morgan Station. Projected space requirements indicate a need for nearly 600,000 square feet, with a minimum number of stories. Single-story operation is optimum, but unrealistic in Manhattan because of limited land resources. A typical city block on the West Side would result in a four-story facility.

With these objectives in view, various sites have been considered by the Postal Service, among them: expansion of the existing leased 34th Street VMF and use of rebuilt city piers. In the first instance, expansion is restricted by an inability to assemble properties for redevelopment. High costs of rebuilding, an inconvenient location for employees and goods movement operations, and indefinite plans for waterfront redevelopment weigh against the use of city piers.

Particular study by the Postal Service was made of a proposal by a private sponsor to develop a combined high-rise VMF and office complex on the north side of 29th Street between Eleventh and Twelfth Avenues, a site located amidst rail yards, trucking, and warehousing operations. Lease costs under this proposal were described by postal authorities as prohibitive, and project occupancy of less than a full city block would result in a VMF of several more stories than desired for operational efficiency.

The city's one-way street pattern would make postal vehicle movements to and from Morgan Station more circuitous and thereby increase potential traffic conflicts and emissions.

The West Side locations identified above all are less convenient in terms of postal goods movement and less desirable to postal employees in terms of convenience of public transit and personal safety. Furthermore, the proposed site would remain subject to the same conditions noted under A.2 above.

C. SCATTERED SITE FACILITIES

Since most of the heavy duty vehicles are associated with Morgan Station for all or part of their trips, the proposed VMF will minimize their travel requirements and is therefore the logical garage location for such vehicles.

For the light duty and diesel units, however, a potential alternative would be to locate such vehicles at or in the vicinity of local postal stations or processing facilities they service.

While this alternative would further reduce postal vehicle travel, space for garage facilities at many of the locations is not available. In addition, scattered development is considered undesirable for the following reasons:

(1) Use of separate facilities would require a significantly larger total fleet of vehicles to meet backup requirements. Overall space needs for parking would similarly increase, with attendant property and tax loss to the City.

(2) Economics of scale in a consolidated facility, as compared to scattered sites, will permit all vehicles to be continuously maintained using the best available carburetion analysis, emissions testing equipment, and maintenance personnel. More effective management and supervision of maintenance also help to maximize the safety and efficiency of postal vehicle operations.

Thus, on an overall basis, scattered site facilities would have no significant environmental advantage over the proposed project.

D. ALTERNATIVE MODES OF POSTAL GOODS MOVEMENT

The Postal Service has studied the feasibility of alternative means of transporting mail in Manhattan, including the use of public transit (subway and other rail) facilities, systems of pneumatic conduits, and various other modes.

D.1 SUBWAYS

Several studies of mail movement by subway were carried out by the Post Office Department and N.Y.C. Transit Authority during the 1950's and 1960's, involving both general feasibility and in-depth investigations of specific proposals. Use of the subways was in each case found to be impracticable or undesirable for one or more of the following reasons:

(1) Most of the local station delivery-collection points are not accessible to subways. Therefore, a surface vehicle fleet would still be required to transfer the mail to the station. In the case of the proposed VMF, many of the vehicles to be garaged are used for "door-to-door" mail distribution within local postal zones, which would not be adaptable to subway use.

(2) Loading-unloading time and transfer requirements were found to be in conflict with passenger service needs.

(3) Mail processing and subway schedules were in conflict, thereby increasing the service time for mail delivery, and twenty-four hour transit service could not be guaranteed.

(4) Security and engineering feasibility problems were found, the latter including such items as alignment, profile and space needs for auxilliary mechanized equipment.

D.2 PNEUMATIC TUBES

An underground pneumatic tube system used in the early 1900's remains in place, though most links are in a seriously deteriorated condition. Recent studies conducted to determine the feasibility of upgrading the system found that:

(1) Capacity of pnumatic tube system is not sufficient to meet present day demands, and space for expanding the capacity is not available.

(2) The existing system serves only a limited number of stations. Even if the system were to be restored, the need for the VMF would not be significantly affected, since most mail movements would still have to be served by vehicles to be garaged in the VMF.

D.3 RAIL

Other than subway use, the only potential rail movement of mail affecting vehicles to be garaged at the VMF is the service to area airports. The Postal Service has participated in the planning of the Kennedy Airport Access Plan (KAAP) and PATH extension to Newark Airport. When these proposed rail links are implemented, the Postal Service expects to eliminate approximately 100 daily heavy duty truck movements between the airports and various processing stations. While VMF heavy duty vehicle travel will be thus reduced, the need for the VMF itself will not be significantly affected since most of the VMF vehicles serve other needs.

D.4 OTHER MODES

Ongoing research and development is being conducted in the use of electronic transmission, with facsimile transmission operational between New York and Washington. Within the near future, however, such means will affect long distance transmission, not the local service mail distribution needs served by the VMF.

The Postal Service also receives and reviews many unsolicited proposals for mail distribution systems or equipment. For example, proposed helicopter use was found to have a very limited scope of application (e.g. could not provide local distribution), low efficiency, weather problems requiring a backup fleet of surface vehicles, and adverse noise implications.

E. RELATED PROGRAMS AND RESEARCH

While not offering alternatives to the proposed VMF project and postal vehicle travel, the Postal Service is continually engaged in programs and research to provide improved vehicle power systems and vehicle maintenance to reduce contributions of vehicle emissions to the environment as well as to provide improved vehicle servicing.

E.1 ALTERNATE POWER SYSTEMS

At its Vehicle Research Lab in Twin Brook, Maryland, the Postal Service is developing and testing various alternatives to the gasoline engine, including electric and propane units. Most of the experimentation is focusing on 1/4 and 1/2 ton delivery vans which comprise the majority of postal vehicles and postal vehicle travel in the U.S. Since less than three percent of the fleet to be garaged at the VMF are 1/4 and 1/2 ton units, such experimentation will not significantly affect VMF related travel. In the future, similar research and development on larger vehicles may result in a significant beneficial effect on VMF vehicle operation.

Experiments with larger, electric powered vehicles were carried out in Midtown Manhattan in the mid-1960's. After a three year trial period, however, the use of the electric vehicles was discontinued because of their limited flexibility and available power for handling large assignments in addition to their high cost of operation.

E.2 VEHICLE MAINTENANCE

In order to provide a safe and efficient vehicle fleet, Postal Service maintenance personnel receive training at their Oklahoma maintenance school in such areas as proper timing and ignition,

problem detection and reporting, and preventative maintenance programs. In addition, vehicle operator supervisors are trained at the Postal Institute in Bethesda, Maryland, in operating techniques such as problem reporting and leaving vehicle ignition off when idle.

The Postal Service is also developing and installing the latest in carburetion analysis and infrared emissions testing equipment in its major vehicle maintenance facilities, such as the proposed VMF, to assure that emissions standards are met and maintained. The Postal Service presently uses California emission standards in its testing, which are more rigid than prevailing national standards. Well maintained vehicles and proper operation techniques resulting from the Postal Service programs will help to minimize adverse noise, air quality or traffic safety impacts result from the VMF operation.

SECTION VI. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The location of the proposed project dictates that assessment of both short-term uses and long-term productivity must be related to activities and qualities of an urban environment.

In assessing the environment of New York City, the Plan for New York City strongly emphasizes the need for preservation and enhancement of "neighborhood" environmental quality. Chelsea's present and diverse residential character has been formed through the years with industrial-commercial activities both scattered within and surrounding the community. As elsewhere, competing pressures for additional housing and for commercial-industrial expansion are and will continue to be found in the Chelsea area. Viewed in terms of immediate objectives, the proposed VMF-apartment complex provides a joint solution to meeting housing demands and locational requirements for postal operations (a commercial-type use).

Such mixed use must also be considered in relation to its effects on long-range land use policy and neighborhood quality. The Plan for New York City encourages flexible and creative use of zoning, including mixed vertical land use, as a means for retaining diversity of character and community stability. Considering the location of the site at the boundary between residential and industrial-commercial zones, the mixed use should help to stablilize the boundary and community change, while providing a visual and functional transition between zones. Joint occupancy will, at the same time, result in a conservation of land resources when compared with occupancy of separate tracts for each of the needed uses.

Need for low- and moderate-income housing has been identified as a top priority issue in the local community. Part of the immediate attractiveness of the proposed complex lies in the economic viability of such housing due to cost savings in air rights use and integrated construction, and in the provision of housing on a site presently zoned for commercial and industrial use. The proposed housing would provide approximately 860 low- and moderate-income units using R8 zoning, a relatively high density compatible with existing residential development in the area. Mixed use will, therefore, not reduce the long-range productivity of the site for exclusive housing use.

In terms of postal operations, the immediate objectives are the consolidation of dispersed, outmoded maintenance facilities into a modern, single location for efficiency, economy and improved working conditions with minimum environmental impact. These objectives must be viewed against long-term goals of improved technologies for postal goods movement.

Development and implementation of new technologies or modes for postal goods movement could render the VMF obsolete in advance of the useful life of the housing portion. Implementation of the earliest feasible time of a distribution system requiring less or no reliance on motor vehicles is needed, however, if long-term, overall reductions in energy consumption and pollution producing processes are to be attained. In such an event, the integrated project design would require conversion of the VMF portion to another use which would of necessity need to maintian compatibility with the housing to preserve the long-term productivity of the housing.

SECTION VII. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

Construction of the proposed VMF-apartment complex will, in essence, recommit the land to a mixed use such as existed prior to site clearance. Mixed use, however, is compatible with land use policy as presented in the Plan for New York City.

As a mixed use, the project represents not an intrusion of one land use into another, but appears appropriate as a transitional use between zones. As such, its indirect effects on land use development should be beneficial, serving to stabilize the relationship between areas rather than to act as a catalyst of change in land use patterns.

Construction of the VMF will require a substantial commitment of financial resources by the Postal Service. The early implementation of new postal modes or technologies found to be feasible may diminish the utility or eliminate the need for the VMF, thereby precluding a full economic return on the original investment.

The proposed project also represents a commitment to development of the land and air rights for uses that may run to full municipal tax exemption.

SECTION VIII COORDINATION WITH OTHERS

The Revised Draft Environmental Statement, dated 15 November 1973, was circulated to Federal, State, and City agencies and community organizations as listed in Section E of the "Summary". This statement modified and expanded an earlier draft environmental statement dated 15 December 1972. In the preparation of both the initial and revised draft statements, numerous government agencies, local groups and private organizations were contacted to assemble relevant data and to discuss areas of concern. These coordinative activities were summarized in the draft statements.

A. WRITTEN COMMENTS RECEIVED

Those agencies and organizations returning written response to the November 1973, Revised Draft Statement are indicated in Section E of the "Summary". Copies of each of the letters received are included as Attachment A to this Statement.

B. OTHER COORDINATION AND CONSULTATION

Since the issuance of the Revised Draft Statement, additional coordinative activities have been carried out with various agencies and organizations, including participation in two public hearings and a special meeting on the project held by Community Planning Board No. 4. Coordinative meetings and discussions have been held with the NYC Environmental Protection Administration, Department of Air Resources, the NYC Housing and Development Administration, the NYC Transportation Administration, and the NYC Department of City Planning. Contacts have also been made with representatives of the West Side Highway Project, NYC Department of Water Resources, and Consolidated Edison Company, and with the New York State Historic Preservation Officer.

C. DISCUSSION OF ISSUES RAISED

Written comments on the Revised Draft Environmental Statement received from governmental agencies and community organizations (see Attachment A) raise a variety of questions. In many cases, the same concerns and issues have been addressed by more than one respondent, from different perspectives. This section organizes the substance of written comments on the proposed project and Revised Draft Environmental Statement into eight (8) broad issue areas, each with one or more specific sub-areas. Discussion corresponds generally to the manner in which subject matter is presented in the statement to facilitate cross-referencing.

C.1 VMF FUNCTIONAL CONTEXT AND HOUSING ASPECTS

C.1.(a) VMF Relation to City-Wide Postal Operations

Among the concerns expressed by the City's Department of Air Resources is that insufficient consideration has been given to alternatives to the proposed action, particularly to those types of mail distribution modal alternatives which could reduce vehicular travel in the City and resulting air pollutants. Section V of the Revised Draft Environmental Statement addresses such alternatives, pointing to on-going research as well as conclusions reached by the U.S. Postal Service as to their practicability.

The proposed VMF is not a central facility in the City or metropolitan mail processing and distribution system; rather its role is supportive to the existing postal delivery system. Heavy capital investments have been made in core facilities like the Morgan Station preferential mail processing center to receive and distribute mail by motor carrier. Locations and operations of branch post offices and the door-to-door nature of local mail delivery service further inhibit, for the forseeable future, switchover to another mode (such as use of subways) or combination of modes which would have the same degree of reliability, efficiency, and flexibility as motor vehicles.

In any case, consideration of alternative modes of mail delivery is an issue of larger scope than the context of a VMF facility designed to house and service a postal vehicle fleet required by the nature of the present system.

C.1.(b) Design of the Housing Component

The configuration of the housing component of the project--that is, high-rise apartment towers on the avenues and low-rise units

mid-block--has been dictated largely by the interior spatial and circulatory requirements of the VMF. According to the A/E design firm, in order to minimize interference with and encroachment on vehicle circulation and space within the VMF, vertical transportation (elevators) for the housing had to be situated at the Ninth and Tenth Avenue ends of the VMF. With the objective of providing for continuous traffic flow from grade to the 27 floors of both towers, within which nearly nine-tenths of the project's 864 housing units are situated, the towers had to be located on the avenues.

The two towers are set back a distance of sixteen feet from the edge of the VMF roof, the maximum setabck permitted by the location of grade level lobbies and elevator cores. Without corrective acoustical measures, setbacks from Ninth and Tenth Avenues of approximately 120 feet are required in order to meet U.S. Department of Housing and Urban Development (HUD) noise standards for federally subsidized housing. Facades of the two towers having windows facing the avenues, therefore, will be outfitted with sound insulating windows and room air conditioning units to achieve outside-to-inside noise reductions necessary to meet HUD standards.

Similar treatment will be provided on tower facades facing 29th Street, particularly the lower stories. Such noise reduction measures are not required for other tower facades nor for the low-rise structures. The low-rise units with windows facing 29th Street are setback sufficiently from the edge of the VMF roof so as to be shielded from 29th Street traffic noise.

It is appropriate to reiterate that noise attenuation measures required for the towers are needed to mitigate the impact of existing ambient noise caused by traffic already found on Ninth and Tenth Avenues. The introduction of the VMF to the neighborhood will not significantly alter traffic conditions which at present impact much existing housing along major thoroughfares in the area in excess of HUD standards.

Alternative configurations of the housing component requiring less acoustical treatment have been studied including (1) transposing the locations of low-rise and tower structures, and (2) construction of apartment buildings along 28th Street and away from the avenues and 29th Street. Both such configurations overall were judged to be less desirable than the proposed design and were ruled out for the following reasons:

- Elevator cores and structural support requirements of both configurations were found to reduce the efficiency and utility of VMF interior spaces.

- Construction entirely along 28th Street would result in deck level (VMF roof) sitting areas and recreational facilities being in shadow for much of the day.

With the high-rise towers located on the avenues as proposed, the deck level is effectively screened from the noise and pollutants generated by traffic along the avenues.

C.1.(c) Housing Mix and Finance

Page II-28 of this document contains a misleading statement regarding a New York City Housing and Development Administration (HDA) "promise" of low- and moderate-income housing. HDA supports construction of such housing in Chelsea but says that it "cannot commit funds it does not control." HDA's commitment is "conditioned upon the availability of necessary subsidies from the federal government." Support of the project by the federal government, however, has been assured by letter of December 26, 1973, from HUD to Congresswoman Abzug's office, which confirmed the availability of sufficient monies from HUD's "Section 23" low income housing program. Such funds, however, may be transferred by the City to more needy low-income housing projects in exchange for "Section 236" low- and moderate-income housing subsidy monies as, and if, they become available.

The housing mix as has been proposed by the City's HDA is 60 percent moderate income, 30 percent low income public housing, and 10 percent senior citizen housing. In terms of housing unit size, the HDA recommended breakdown is 30 percent 0-bedroom, 30 percent 1-bedroom, 30 percent 2-bedroom and 10 percent 3-bedroom. Design of the high-rise towers and low-rise apartments reflects this mix. All 3-bedroom units are located in the two low-rise buildings. This affords minimum travel between the deck level and those units housing the largest number of children.

C.2 CONSTRUCTION IMPACTS

C.2.(a) Strategies to Minimize Traffic Related Impacts

As discussed in Section III.C.1, some interference with normal street traffic operations adjacent to the site will undoubtedly occur during the construction period. To protect against any major flow restriction and resultant adverse air quality impacts, the City of New York requires that all construction procedures that could affect traffic flow (e.g., lane blockages to accommodate construction equipment) be approved by the Mayor's Traffic and Construction Coordinating Committee.

While the specific procedures requiring approval will likely vary dependent upon the particular contractor(s) involved, construction activity for the proposed project should in no case require restrictions on any side beyond the present sidewalk and immediately adjacent street lane. Such restrictions can be accommodated without significantly affecting present uncongested flow conditions on the surrounding streets. Along 28th Street, present use of the adjacent lane for parking would have to be temporarily suspended. Availability of the VMF deck as a construction staging area for the housing units will, in addition, help to minimize construction activity requirements at the street level.

C.2.(b) Construction Noise Impacts at Various Nearby Facilities

Estimated construction noise levels throughout the construction period are illustrated (Figure III-6) and discussed in Section III. A.3.(d) for P.S. 33, considered the most critical of the affected nearby receptors. Construction noise level contours for the general site vicinity under various source levels and patterns are shown in Technical Appendix E, Figures E-9 to E-15. Throughout the construction period, exterior noise levels for nearby receptors other than P.S. 33 would be:

Location	Construction Noise Level (see Figure III-6)
Penn South Houses (nearest apartments)	10 dBA above P.S. 33
Lower West Side District Health Center	10 dBA above P.S. 33
Church of the Holy Apostle	5 dBA above P.S. 33
French Hospital	equivalent to P.S. 33

The sound level outside the Health Center and Penn South houses will thus be at a level equivalent to the present L_{10} level during daytime periods. At the French Hospital the construction noise generated sound level will be equivalent to the present L_{50} sound level.

Required compliance with New York City noise code requirements governing construction times and noise source levels should serve to mitigate any significant adverse impacts. In addition, if necessary and where practicable, accommodations in construction scheduling will be made to meet special needs arising in relation to school, health service or similar activities.

C.2.(c) Blasting Impacts*

Noise from blasting of rock is caused by the blasting cap, the detonator cord and the explosive. When the explosive is confined to bore holes and is covered by tamping, the primary noise sources are the blasting caps and the detonator cord.

Assuming that an electric blasting cap with 25 feet of moderate explosive core load detonating cord is used per shot (a moderate explosive core load would be from 30 to 40 grains per foot) then the peak sound levels would be:

Location	Approximate Peak Sound Level
Lower West Side District Health Center	105 dBA
Penn South Houses	105 dBA
Church of the Holy Apostle	100 dBA
French Hospital	85 dBA

These sound levels can be reduced either by covering the detonating cord with about six inches of material, or by using a low-grain core load per foot of detonating cord (less than five grains per foot).** The adverse effects in covering the detonating cord are time consumption and excess amounts of fly-material, while a low-grain load cord provides a less rapid detonation. The reductions in sound level obtained could be as much as 25 to 30 decibels, thereby reducing the peak sound levels to below existing traffic generated peak sound levels (about 85 dBA). It is expected that monitoring will have to be performed so that optimum performance of the blasting can be achieved.

C.3 TRAFFIC OPERATIONS AND CIRCULATION

C.3.(a) 29th Street Operations and Alternate Southbound Routing

In order to expedite site accessibility and minimize postal vehicle circulation and travel in the site vicinity, the Postal Service has

* "Vibrations from Blasting Rock", L. Don Leet, Harvard University Press, 1960.

** "Measurement and Reduction of Noise from Detonating Cord used in Quarry Blasting", Bureau of Mines Report No. 7678, 1972.

proposed to operate its vehicles directly to/from southbound Ninth and northbound Tenth Avenues (i.e., two-directional flow), as appropriate, during the period it is to have exclusive use of West 29th Street. U.S. Public Law 92-313 authorizes the conveyance of air rights over the proposed VMF to the City of New York for housing purposes, provided that the postal service be given the exclusive use of West 29th Street between Ninth and Tenth Avenues, an exclusive use the Postal Service has agreed to relinquish during weekday evening rush hours.

The City Transportation Administration has expressed reservations with regard to exiting east-to-southbound movements from 29th Street into Ninth Avenue, suggesting possible rerouting of southbound vehicles west along 29th Street to Eleventh Avenue in keeping with the prevailing westbound flow direction along 29th Street. Similar southbound vehicle rerouting during normal nighttime sleep hours has been suggested by the City Environmental Protection Administration to eliminate potential noise level increases along Ninth Avenue, however significant*, during such periods.

Potential noise impacts along residentially bordered Ninth Avenue would be averted by rerouting nighttime traffic to non-residential Eleventh Avenue. Similarly, potential motorist or pedestrian confusion at the corner of West 29th Street and Ninth Avenue due to the east-to-south movements would be eliminated, though use of proper control devices should minimize any such potential for confusion under the proposed circulation. By contrast, rerouting of southbound VMF traffic via Eleventh Avenue would add one-half mile per southbound vehicle trip, or approximately 153** vehicle miles of travel per day. Travel time would be increased by approximately two and one-half to three minutes per trip***, or approximately 14 hours per day. Daily VMF travel carbon monoxide emissions would increase by 3.8 percent, from 297,200 grams/day (see Table VIII-3) to 308,400 grams/day, though the latter would still remain below the 323,600 grams/day burden without the facility. Rerouting of southbound PMC movements would further increase postal vehicle travel requirements and emissions burden.

The Ninth Avenue southbound routing is at present a proposed route and subject to change as conditions warrant(e.g., the development of noise or traffic operations problems). The Postal Service has maintained in the past, and intends to retain, the flexibility to alter its routes in response to such situations.

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* See Section III.A.(b). Projected noise level changes during such periods range from no change up to increases of 5.5 dBA in L_1 and 6.5 dBA in L_{10} levels; such increases considered a borderline NO IMPACT - SOME IMPACT condition.

** 1/4 to 1 ton units = + 57 vehicle miles/day, 2 ton units = + 25 vehicle miles/day; 5 ton units = + 24 vehicle miles/day; diesel units = + 27 vehicle miles/day.

***Based on travel speed data from West Side Highway Studies.

It should also be noted that the VMF-PMC impacts on Ninth Avenue as described in the statement tend to be somewhat overstated since, for analytical purposes, all VMF-PMC movements were added to present traffic levels as "additional" traffic. In fact, Ninth Avenue presently serves as a southbound route from the GPO for some vehicle trips included in the VMF-PMC traffic movements.

C.3.(b) Control Devices

"Provision" of traffic control devices as stated in the Summary and Section III.C.1 of the Revised Draft Statement is not intended to reflect actual installation of such devices, responsibility for which would be retained by the City Department of Traffic. However, under present arrangements, funds for all special devices necessitated by the project would be provided by the Postal Service.

C.3.(c) Area Traffic Growth

As described in Appendix B, Section B.3, 1980 traffic levels on surrounding streets without the VMF were considered to be equal to present levels, based on an evaluation of recent trends and coordination with other studies and anticipated projects affecting the area. At the time of preparation of the Revised Draft Statement, West Side Highway Project projections were in a preliminary phase, and therefore could not confirm or reject such an assumption.

Since the Revised Draft Statement preparation, additional contacts have been made with traffic personnel of both the City and the West Side Highway Project. Current projections of 1972 to 1995 changes in vehicle trip ends for the square mile area encompassing the subject project vary from a decrease of approximately eight percent to an increase of seven percent. Comparable estimates for the Manhattan CBD area show a projected increase in trip ends of approximately nine to eighteen percent.

Such changes result in a minimal effect on projected volumes for the study area streets. In fact, projected 1995 volumes are in some cases less than the 1980 "without VMF" volumes used in the VMF Revised Draft Statement. Table VIII-1 indicates such comparisons for Ninth and Tenth Avenues, the major streets most directly affected by the project. However, as noted in the Revised Draft Statement, speculation at this time as to any reduction, either overall or for any specific street segment in the study area, would be premature. For the above reasons, the traffic projections used in preparation of the Revised Draft Environmental Statement are considered to remain valid.

Table VIII-1

COMPARISON OF ESTIMATED PEAK PERIOD TRAFFIC VOLUMES
(Vehicles/hour-range)

	West Side Highway Project(1) 1995	VMF "Background"(2) 1980
Ninth Avenue(3)		
A.M.	1400-1800	1600-1800
P.M.	1100-1450	1400-1500
Tenth Avenue(3)		
A.M.	800-1300	900-1100
P.M.	700-1300	1350-1800

(1) 1995 "B" growth assumption, approximate range for various "build" and "no build" options.

(2) Without VMF-PMC and Housing Traffic - see Appendix B.

(3) Between 23rd and 34th Streets.

C.3.(d) Postal Movements South of the Study Area

The proposed postal vehicle operations will not affect the Gansevoort-meat market area. Travel to and from lower Manhattan will occur via such currently used* routes as Sixth and Seventh Avenues and 23rd Street. The scattered and off-peak distribution of additional movements are such that no significant changes in traffic operations are anticipated along such routes.

C.3.(e) Traffic Diversions

The basis for estimated traffic diversions due to the closing of West 29th Street to non-postal traffic--current flow patterns and alternate route traffic conditions--are discussed in Appendix B, Sections B.4.(c) and B.5.(c). Prevailing travel conditions and volume information for alternate routes were obtained primarily from West Side Highway Project data.

C.3.(f) Worker and Resident Cars

In accordance with current City policies, minimal provision has been made for resident parking and to further encourage public transportation use, no employee parking spaces are provided. The relatively close and safe accessibility to subway facilities (i.e., as compared to the present garage and pier areas) should also help to encourage such use. The Revised Draft Statement has acknowledged, however, that a potential exists for some increase in the demand for on- and off-street parking in the area (Sections III A.1.(c) and III A.4).

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* To/from GPO and other midtown facilities.

C.4 AIR QUALITY

C.4.(a) Model Validation and Calibration

The calibration and validation of an atmospheric diffusion model requires detailed observations of ambient pollutant concentrations, both roadway specific and background levels, accompanied by meteorological observations and the estimation of source emissions. In urban areas the model calibration procedure is especially complicated because of the alteration of the wind by buildings and other obstructions and because of the difficulty in measuring background levels of pollutants.

Environmental Research and Technology, Inc. has developed a sophisticated numerical modeling capability, both validated and calibrated in the near field of roadways, for use in assessing the impact of air quality in urban areas. The model utilizes "microscale" meteorological inputs--values of velocity and turbulent diffusivity profiles which depend primarily upon local topographic features rather than synoptic or mesoscale features more regionally dependent. The model was extensively validated and calibrated in Washington, D.C. Since the characteristics of the turbulent winds, which disperse the vehicular pollutant emissions, are generally independent of geographical area but are dependent on local topography, buildings and roadway configuration, and since the validation sites in the District of Columbia are representative of New York City urban areas, the model is considered to be as applicable to New York City as it is to Washington, D.C.

The model calibration procedures, input parameters, and validity tests are documented in detail in a report by Bruce A. Egan and collaborators (1973)*, and are summarized by Egan and Lavery (1973)**. These documents are on file with the New York District Corps of Engineers office, 26 Federal Plaza, New York, New York, 10007 for review if desired.

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*Egan, B.A., et al, 1973: Development of Procedures to Simulate Motor Vehicle Pollution Levels, ERT Document P-343-F, Environmental Research and Technology, Inc., Lexington, Mass.

**Egan, B.A. and Lavery, T.F., 1973: Highway Designs and Air Pollution Potential, AIAA Paper No. 73-972, 3rd Urban Technology Conference, Boston, Mass., September 1973.

C.4.(b) Worst Case Meteorological Conditions

The worst meteorological conditions assumed in simulating the highest carbon monoxide concentrations were a wind speed of one meter/second and neutral atmospheric stability. Since pollutant concentrations are inversely proportional to wind speed, the lower speeds result in high pollutant levels. Wind direction, however, is quite variable at low wind speeds. The organized transport of pollution from a source to a particular receptor over times of an hour or more results when the wind direction is fairly persistent.

The highest concentrations resulting from a low level source occur with a persistent wind direction and low speeds. The lowest wind speed at which the direction is fairly persistent is about one meter/second. A lowest wind speed of one meter/second has been recommended in the California Division of Highways Manuals* on assessing the impact on air quality resulting from vehicular emissions. It has also been recommended by EPA in the Federal Register** in the discussion of the impact of mobile source activity in assessing the effect of indirect (complex) sources. Hence, the one meter/second wind condition was assumed that producing the highest resultant concentrations for time periods of an hour or more.

Investigations concerning the vertical temperature gradient over New York and Cincinnati have found that although nocturnal inversions are present over the surrounding rural and suburban areas, the temperature actually decreased over the urban areas***. In general, the thermal and mechanical influences of the urban area suggest that the lowest part of the typical urban atmosphere is less stable than surrounding countryside. Thus, following Calder (1971)****, a neutral stability was assumed to apply to those times when the "rural" airport is stable.

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*Beaton, J.S., et al, 1972: Mathematical Approach to Estimating Highway Impact on Air Quality, Report No. FHWA-RD-72-37, Vol. IV., FHWA, p. 8.

**Federal Register, Volume 38, No. 116, June 18, 1973, p. 15837.

***Peterson, J.T., 1969: The Climate of Cities: A Survey of Recent Literature, HEW, Environmental Health Service, Durham, North Carolina, October 1969.

****Calder, K.L., 1971: A Climatological Model for Multiple Source Urban Air Pollution. Proceedings of the Second Meeting of the Expert Panel on Air Pollution Modeling, NATO Committee on the Challenges of Modern Society, Paris, July 1971.

C.4.(c) Carbon Monoxide Background Levels

The air quality in the environs of an urban roadway is affected by two sources of pollutant emissions: the contribution of vehicular emissions from the street itself and the contribution of emissions from the aggregation of nearby sources other than the roadway itself. This latter contribution is defined as background pollution.

The measurement of background pollution at an urban site is complicated and costly. It typically involves continuous pollutant monitoring simultaneously at two or more sites along with recordings of wind speed and direction. Complicated local topography adds to the difficulty in separating the specific street generated pollutants and the background. This is true at the proposed VMF site.

As a conservative alternative, the background carbon monoxide levels were estimated from NYC Department of Air Resources measurements taken at 110 East 45th Street. This monitor has recorded the highest CO levels in the City. Since the monitors at the 45th Street site records local traffic-generated carbon monoxide concentrations as well as background, the CO concentrations averaged over the month of July 1972 were assumed to represent background levels. This is certainly a conservative assumption. A daytime background of more than 15 ppm for 1972 for the VMF site is certainly high. The corresponding projected 1980 background levels are also high. The daytime average is projected to be 6.8 ppm--75 percent of the eight-hour standard of 9 ppm.

C.4.(d) Simulation Techniques for the Estimation of Carbon Monoxide Levels on 34th Street

To estimate carbon monoxide concentrations on 34th Street, a simple area source diffusion model, originally derived by Gifford and Hanna*, was employed. This model essentially simulates vehicular emissions, street dimensions, and meteorological conditions, but not the geometry of the surrounding buildings. For the 34th Street analysis, a detailed horizontal and vertical distribution of carbon monoxide such as was used to assess impact on the air rights housing along 29th Street was not considered necessary.

The results of the two models are comparable. With stalled traffic on 29th Street the detailed numerical model predicts 16.5 ppm (see Figure C-3), excluding background. The simple area source model predicts 21 ppm with identical emissions. For identical circumstances the simple model predicts higher concentrations than the numerical model. Thus, use of this simple model for 34th Street provides a relatively conservative estimate of carbon monoxide levels.

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*Gifford, F.A. and Hanna, S.R., 1971: Urban Air Pollution Modeling, Proc. of the Second International Air Pollution Conference, IUAPPA, New York, Academic Press.

C.4.(e) Derivation of Vehicular Emissions

The emission factors used to characterize the vehicular emissions in the assessment of air quality were derived from the tables in Appendix II of the Proposed Plan for Meeting Federal Air Quality Standards Relating to Carbon Monoxide, Hydrocarbon, Nitrogen Oxides and Oxidants in New York City, from actual traffic counts and speed data, and from data provided by the U.S. Postal Service. Details of these derivations are provided in Section C.4 of the Technical Appendices.

The light duty vehicle (LDV) emissions factors were calculated from three classes of taxis and for privately owned automobiles as listed in the City Implementation Plan. The final LDV factor was determined by weighting each of the four specific factors by the number of vehicle miles traveled. Heavy duty (HDV) and diesel emission factors were obtained directly from the Implementation Plan. Hence, the vehicle age mix used in the plan also applied to this study.

Emission factors were provided for uncongested and congested traffic conditions. These were defined as 12 mph and 7 mph for LDV, 12 mph and 4 mph for HDV, and 7 mph and 4 mph for diesels, respectively. The appropriate speed correction factors were applied to the basic factors to calculate the above specific emission rates.

Traffic counts, average link speeds, and the percentage of vehicles greater than 6,000 pounds gross weight, and the percentage of diesels were either measured directly or taken from the West Side Highway Project studies. These were used to derive street specific emission rates.

Data on the distribution of postal vehicles was obtained directly from the U.S. Postal Service. In the Revised Draft Statement, all one-quarter ton to two ton vehicles were considered as LDV. All five ton trucks were considered as HDV. The basic emission factors derived from New York City data were applied to the postal vehicles.

Further investigation has indicated that use of the City LDV rates for the two ton vehicles understate their actual emission rates. An evaluation of Postal Service directives regarding engine tune-up and characteristics of the two ton vehicles, indicates the approximate emission rate for a typical distribution of two ton postal vehicles for 1980 would be 69 grams/mile at 20 mph. Air quality assessments involving the two ton units have therefore been revaluated, applying the City specific HDV rates to the two ton vehicles as a conservative estimate.

The only calculations measurably affected by the reanalysis are those involving assessment of the impact of total daily postal vehicle

emissions on the City emission burden. Table VIII-2 provides separate daily vehicle mileage indications for one-quarter to one ton and two ton vehicles, originally grouped together in Table III-1. Using the HDV rates for two ton units, the overall daily emission burden (Table VIII-3) increases over original estimates for both the build and no build cases. The basic change is a net decrease in VMF postal travel emissions of eight percent, rather than 20 percent as indicated in the Revised Draft Statement (Table III-3). Traffic operations and noise assessments are not affected.

C.4.(f) Consideration of Additional Pollutants

Particulates. The primary pollutants emitted from motor vehicles include particulates as well as CO, HC, and NO_X. One of the most serious aspects of air pollution is the increasing concentrations of submicroscopic nuclei in the atmosphere. They constitute the majority of airborne particles found in "urban air". Although automobiles do emit particulates, the amount emitted by mobile sources is small compared to the amount emitted by large stationary sources as power plants and industrial processes. For example, in 1966 it was reported* that eight percent of the particulates emitted in the U.S. were from transportation related sources. Similar results in California were two percent from mobile sources.

The U.S. Environmental Protection Agency has promulgated standards for ambient particulate concentrations: a 24-hour standard of 260 $\mu g/m^3$ and an annual standard of 70 $\mu g/m^3$. To assess the impact of VMF exhaust on nearby receptors, an emission rate was calculated assuming peak traffic movements in the VMF**. This will occur between 5 and 8 A.M. Table VIII-4 summarizes peak one-hour concentration for nearby locations. As the table indicates the pollution levels, resulting from the VMF alone, will be substantially lower than the 24-hour standard.

Lead. Atmospheric lead became a health problem in a significant way when tetraethyl lead was added to gasoline. Some lead is emitted into the atmosphere from stationary sources, but auto exhaust is the largest contributor. Most of vehicular lead emissions are exhausted in the form of particulates which can be inspired by the human body. This source contributes, on the average, between 0.01 and 0.10 mg/day***. Of the finely divided lead particles, 50 to 80 percent are exhaled without being standard.

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*The Source of Air Pollution and Their Control, U.S. Public Health Service, 1966, Pub. No. 1548.

**The emission rate used was 58.25 g/hr.

***Reference: "Survey of Lead in the Atmosphere of Three Urban Communities", 1965. The Working Group on Lead Contamination, U.S. Department of Health, Education, and Welfare, Public Health Service, Division of Air Pollution, Cincinnati, Ohio.

Table VIII-2

VEHICLE MILEAGE BREAKDOWN OF 1/4 TO 2 TON UNITS*

Present Garage Location	Vehicle Type	Present Vehicle Mileage	Proposed Vehicle Mileage	Vehicle Mileage Change
Leroy Street	1/4-1 Ton	287	693	+406
	2 Ton	123	297	+174
	Subtotal	410	990	+580
Piers/34th St.	1/4-1 Ton	568	488	- 80
	2 Ton	722	622	-100
	Subtotal	1,290	1,110	-180
	TOTALS	1,700	2,100	+400

*See Table III-1

Table VIII-3

[illegible]80 DAILY POSTAL VEHICLE CARBON MONOXIDE EMISSIONS*
(grams/day)

	With VMF	Without VMF
1/4 to 1 ton	18,306	13,253
2 ton	162,295	149,227
5 ton	83,002	125,386
Diesel	33,630	35,754
	297,235	323,620

*Revisions to Tables III-3 and C-8

Table VIII-4

HOURLY PARTICULATE CONCENTRATIONS DUE TO VMF VENT EXHAUST ON NEARBY RECEPTORS

	Concentration* ($\mu g/m^3$)
VMF Roof	3.8
Morgan Station	3.8
Apartment Building	3.1
French Hospital	1.5
Clinic and School	1.5
Upper Floors of Opposite Tower	37
Other Sites	< 1.5

*24-Hour Standard is 260 $\mu g/m^3$

Additionally, lead is ingested into the body in food and beverages. This source contributes, on the average, between 0.12 and 0.35 mg/day^{-1}. About 90 percent of this, the larger portion of lead ingested daily, is discharged from the body without being absorbed.

Present evidence indicates that the human body establishes an equilibrium between lead intake and output. If this equilibrium is upset by marked increases of lead intake, the body seeks to establish a new equilibrium, at a somewhat higher bodily concentration of lead. Lead poisoning occurs when intake is so rapid that the body cannot adjust, or when equilibrium reaches a level that is so high as to be poisonous.

Lead is emitted by motor vehicles in concentrations low enough not to be considered a health hazard for the average person. For persons with considerable exposure to occupational lead pollution, it may present an undesirable increase in exposure.

Sulfur Oxides. The EPA has promulgated standards for sulfur dioxide. However, the amount emitted by transportation sources is minute and completely negligible in comparison to stationary sources.

C.4.(g) Impact on Air Quality: VMF without Housing

Air quality impacts due to the VMF only, prior to completion of the housing component (i.e., VMF without housing) are discussed in Section IIIA.2.(d) and Technical Appendix C, Section C.11. The primary difference from the complex is that VMF exhaust vents will be located only 70-90 feet above street level, rather than 320 feet with the housing towers completed.

The highest expected CO levels with this type of exhaust geometry will be about 11.5, excluding background and other vehicular sources, on 29th Street during the 5-8 A.M. period. It is not expected that the one-hour CO standard will be exceeded in the vicinity of the VMF with this type of ventilation. However, poor atmospheric diffusion conditions and persistent light winds from a westerly sector, transporting the VMF exhaust plume onto Ninth Avenue, combined with heavy traffic on Ninth Avenue could lead to a contravention of the eight-hour standard of 9 ppm. The annual frequency of occurrence of this possibility is conservatively estimated at about nine times per year.

C.4.(h) Air Quality in the Chelsea Community

Due to the proximity of the proposed VMF site to the community of Chelsea, an assessment of facility related air quality included an investigation of the overall impact of a potentially increased pollutant loading upon this predominantly residential area. While the diffusion calculations indicate that emissions from this facility may be expected to contribute very little to existing contaminant concentrations within the community, it is recognized that any incremental increase will be of concern to residents who spend a high percentage of the time living and working in Chelsea.

During 1972 air quality measurements taken by the NYC Department of Air Resources in midtown Manhattan and in the Garment District have indicated the severity of the air pollution problem in New York and also in the Chelsea community. A few hourly CO concentrations greater than 35 ppm have been measured. The eight-hour CO standard of 9 ppm is frequently exceeded.

The U.S. Environmental Protection Agency has promulgated automobile emission standards to reduce ambient pollution levels. The New York City Air Quality Implementation Plan has dictated schemes to reduce automobile pollutant emissions. The overall result will be a decrease in pollution levels in Chelsea by 1980. Table III-4 depicts the fact that overall emissions for the 15-block area south of 30th Street will be substantially reduced by 1980--with or without the VMF. Construction of the VMF will slightly increase emissions in

the 15-block area; but overall emissions by the postal vehicles themselves will be reduced by the consolidation of the movements of the heavy duty postal vehicles.

The primary pollutants emitted in automobile exhaust are carbon monoxide, non-methane hydrocarbons, oxides of nitrogen, and particulates (including lead). Carbon monoxide is a local problem in that the impact of CO is short-term and is restricted to within a small region near the pollutant source. In 1980 it is expected that the one-hour CO standard of 35 ppm, including all CO sources in the Chelsea area, will not be exceeded. The eight-hour standard, which is currently frequently violated, will be exceeded only during particularly adverse traffic and meteorological conditions and only at street level very close to major traffic arteries. The air rights housing, whose base will be 60-80 feet above street level, will not be exposed to high CO levels. If the housing were to be built at street level, it probably would be exposed to high eight-hour average CO concentrations a few times a year.

Hydrocarbons and their related precursors, oxidants (ozone) and oxides of nitrogen, are problems not on a local scale (e.g., a specific street segment) but are problems on a larger urban scale. In fact, the National Hydrocarbon Standard has been established to achieve the photochemical oxidant standard. The Implementation Plan indicates that a 60 percent reduction in HC emissions would be necessary to meet the oxidant standards. Although this reduction will not be attained by 1980, an overall reduction of 50-55 percent is expected. Similarly, although the annual NO_2 standard of 0.05 ppm will also not be achieved by 1980, a marked reduction in NO_2 levels from 0.14 ppm in 1972 to 0.08 ppm is expected.

Localized high HC levels can, however, have an effect on vegetation. Concern has been expressed over the impact of pollution levels on the London planes on 28th Street adjoining Chelsea Park. As Table C-5 indicates, the HC emissions on 28th Street will be reduced substantially in 1980. Any impact the VMF exhaust will have on these trees will occur during high wind speeds when the exhaust is brought to ground level during aerodynamic downwash conditions. At this time ground level HC concentrations attributable to vehicular sources will ordinarily be low due to the high winds. The only conclusion is that the environment for the London planes and the vegetation in Chelsea Park will improve by 1980.

Although automobiles do emit particulates and some sulfur oxides, the contribution of these emissions to total ambient levels is very small. The VMF exhaust during peak ventilation will emit particulates whose concentrations are only a small fraction of the 24-hour standard. SO_2 levels from mobile sources are negligible.

High CO levels (on the order of 100 ppm) in the VMF exhaust would occur, if at all, only during the 5-8 A.M. period of peak VMF operations. The housing portion of the project will be sealed from the garage. The ventilation shafts through the housing towers will be designed to prevent carbon monoxide leakage from shaft to apartment units. Shaft wall construction will consist of eight-inch (8") concrete masonry units (blocks with a maximum 25 percent voids) with a one-inch (1") cement plaster coating on interior faces. A one-foot (1') air space will separate the shafts from four-inch (4") solid masonry apartment walls facing the shafts. As a further precaution, the ventilation system is designed to maintain negative pressure in the exhaust shafts, further preventing any pollutant leakage. Sensors in the air spaces between shaft and apartment walls would detect any seepages which might remotely occur. VMF operations would be altered pending resolution of the problem. In general, the impact of the VMF exhaust on external initial locations, including Chelsea Park, Chelsea Elliott Housing, and the residences along 29th Street between Eighth and Ninth Avenues, is negligible because the point of exhaust is greater than 320 feet above street level--100 feet higher than the height of the nearest building.

In summary, there will be an improvement in air quality in Chelsea by 1980 due to the mandates of the EPA and the Air Quality Implementation Plan. The construction of the VMF will not help improve air quality, but it will also not seriously detract from it. The VMF exhaust vent is high enough above street level such that effluents will be diluted before reaching the ground (or building) level and resulting pollutant concentrations will be small.

C.4.(i) Diverted Traffic Impacts

Air quality impacts along 31st, 33rd, and 34th Streets due to diverted traffic are described in Section IIIA.2.(a) and Technical Appendix C, Section C.5, for both prevailing parking conditions and with improved enforcement of existing parking regulations along 31st and 33rd Streets. As noted, rigid enforcement of regulations along both sides of 31st Street and 33rd Streets would likely be both impractical and unnecessary. However, enforcement of restrictions along one side of each street in order to provide two lanes for moving traffic appears both practicable and reasonable, particularly in view of the reduced postal vehicle dock use and parking needs on 31st and 33rd Streets adjacent to the GPO.

C.5 NOISE ENVIRONMENT

C.5.(a) Modeling Noise Levels due to Trucks

The traffic noise model which has been developed for heavy trucks is displayed in Figures III-4 and III-5. The increase in sound level depends on the increase in numbers of trucks following the equation:

$$\text{Increase in } L_{10} = .6 \log \frac{T_2}{T_1} \text{ decibels}$$

Where T_2 is the truck count "after" and

T_1 is the truck count "before".

A similar traffic model was formulated as part of noise studies for the West Side Highway project. In that case a total of medium and heavy trucks was used. The dependence was found to be:

$$\text{Increase in } L_{10} = .3 \log \frac{T_2}{T_1} \text{ decibels}$$

The VMF traffic model is thus more conservative (placing greater emphasis on traffic increases) than the West Side Highway model. These traffic modeling techniques take into account factors of vehicle acceleration and deceleration as noted in Section II.D.

C.5.(b) HUD Noise Requirements

Using the VMF study models for L_1 and L_{10} at 60 feet and 200 feet, the following sound levels can be expected along Ninth Avenue:

	60 feet	200 feet
L_1	84.5	76.5
$L_{4.2}$(interpolated)	81	74.5
L_{10}	77.0	72.5

The derived distance relationship for $L_{4.2}$ levels is therefore:

$$\Delta L_{4.2} = 13 \log \frac{200}{60} = 6.5 \text{ dB}$$

Since the nearest apartments in the towers will be about 85 feet from the single-lane equivalent traffic noise source, the reduction from the $L_{4.2}$ level at 60 feet would be:

$$\Delta L_{4.2} = 13 \log \frac{85}{60} = \text{approximately } 2 \text{ dB}$$

The expected post-operation $L_{4.2}$ sound level at the lowest apartments in the apartment towers will thus be approximately 79 dBA.

HUD Circular 1390.2 requirements regarding interior noise exposure (45 dBA limit for 30 minutes) during the nighttime sleeping hours

from 11 P.M. to 5 A.M. requires that the exterior of the apartment towers be constructed in such a way that the composite transmission loss of the facade is no less than 26 dB.

The above criterion translates to L_8 = 45 dBA for the six-hour nighttime period. With expected additional traffic on Ninth Avenue, the L_{10} for the six nighttime hours will be 78 dBA at a distance of 60 feet, or an L_8 = 79 dBA. Extrapolated to a distance of 85 feet gives an L_8 = 77 dBA.

The facade should thus have a noise reduction of 32 dBA (77-45). A noise reduction of 32 dBA can be achieved with a facade composite transmission loss of 26 dB. The A/E design firm has been advised of this requirement.

The low rise buildings facing 29th Street will have no living room windows closer than approximately 25 feet from the edge of the plaza level and they will thereby be shielded from the traffic movement noise on 29th Street.

Apartment tower living room windows facing 29th Street should also be acoustically treated since the expected cumulative sound level L_{33} will be 68 dBA at the lowest apartments in the tower on the Ninth Avenue end. The L_{33} is expected to be 67 dBA at the lowest apartment in the tower facing Tenth Avenue.

C.5.(c) Ambient Noise Levels at Penn Station South Houses

Noise measurements taken June 7 and 8, 1973 on the roofs of Public School 33 and the Penn Station South Houses (Technical Appendix E, Tables E-2 and E-3) are representative of sound levels approximately 60 and 200 feet, respectively, from a single-lane equivalent traffic noise source along Ninth Avenue. Thus, the P.S. 33 roof level measurements indicate also noise levels occurring outside the Penn South apartments nearest to Ninth Avenue, as well as other facades facing Ninth Avenue in the vicinity.

These relationships are confirmed by comparisons to noise level measurements taken at the Penn South Houses on October 2, 1972 in conjunction with West Side Highway project studies (all readings in dBA):

	Penn South Houses Curbside Oct. 1972	Roof of P.S. 33 June 1973	Roof of Penn South Houses Oct. 1972	June 1973
L_1	85	85	75	77
L_{10}	80	79	70.5	72
L_{50}	73	70	65.5	66
L_{90}	64	62.5	62.5	64

C.5.(d) Air Vent and Compressor Room Noise

The design goal for all VMF vent openings to mechanical rooms is an exterior sound level of 55 dBA during nighttime and 60 dBA during daytime measured at a distance of 15 feet from the openings. Resultant sound levels will be equivalent to present ambient levels at close distance.

C.5.(e) Noise Escaping from the VMF Interior

Escape of interior noise will be adequately taken care of by using the design goals as discussed for air vent openings. Any amount of noise escaping through the garage doors in 29th Street would be well below present ambient when reaching the Penn South Houses on Ninth Avenue.

C.5.(f) Noise from Room Air Conditioners in the Housing Towers

The location of greatest potential noise impact from operation of the room air conditioners would occur at the apartments of the Penn South Houses facing the VMF apartment towers. Should the approximate total of 250 room units in the Ninth Avenue facade be running simultaneously, the expected sound level across Ninth Avenue in the nearest Penn South Houses apartment (outside window) would be approximately 61 dBA*, or less than the present average (L_{50}) level. Should half (125) of the air conditioners be in simultaneous use, the sound level across the avenue would be equivalent to the present L_{90}, creating no impact.

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* Based on data from Bolt, Beranek and Newman, Inc., Report No. 1451. A Noise Measurement Survey of Residential Air Conditioning Installations in Coral Gables, Florida.

C.6 URBAN FORM AND SOCIO-ECONOMIC ASPECTS

C.6.(a) Relation to Chelsea Park and City Landmarks

According to the 1969 Plan for New York City, Chelsea "suffers from a shortage of park space." Chelsea Park, adjacent to the proposed VMF project on 28th Street, is the community's principal outdoor recreation resource. Doubtless, the addition to the neighborhood of 864 housing units will increase demands on the Park, although any such increases should not be unduly burdensome, as pointed out in Section III.A.5.(c).

The deck level of the VMF project will contain sitting areas for the passive use of leisure time, play apparatus for small children, and handball, basketball, and shuffleboard courts. Housing plans also provide for three large community rooms for a variety of indoor social and recreational activities. Some recreation needs of project occupants will be met by these deck level facilities. In addition, the vertical separation from street life may act as a psychological inhibitor to the use of Chelsea Park by air-rights project residents.

The Church of the Holy Apostle on Ninth Avenue at 28th Street, diagonally opposite the proposed VMF site to the southeast, is the only site of cultural or historic significance directly affected by the VMF, and is listed on the National Register. The City Landmarks Preservation Commission has indicated that it found no significant impact on this or other landmark properties and historic districts of the City. To assure full necessary coordination, the State of New York Historic Preservation Officer has been forwarded a copy of the Revised Draft Environmental Statement and invited to comment.

C.6.(b) Relation to Lower West Side District Health Center

The Lower West Side District Health Center at the Ninth Avenue end of Chelsea Park is the community's principal outpatient clinic. It has a staff of some 100 including field personnel. On a generally busy day, the center will receive approximately 400 patients. Services include a twice-weekly chest clinic, daily dental clinic, daily examinations for venereal disease, daily child health use, and weekly sessions on lead poisoning.

From contact with Health Center representatives, it was determined that existing programs and services, while now fully utilized, can be expanded to meet additional demands. The contribution of the

proposed 864-unit apartment project will not add appreciably to the population of the Health Center's wide service area. Close proximity, however, could generate a patronage rate for the project higher than that of the average for the service area.

A variety of other community sponsored, public, and private health facilities providing in-patient and out-patient care are found on the West Side.

C.6.(c) Community Housing Needs

The 1969 Plan for New York City supports the City's great need for housing, indicating that some 800,000 units are required for low- and moderate-income families. Housing shortages are acute in the Chelsea and Clinton neighborhoods (Community Planning District No. 4). Housing stock declined by ten percent (approximately 5,000 units) overall from 1960 to 1970. However, more than twice this number of low- and moderate-income units may have been lost in the Chelsea area through conversion to middle- and upper-income housing and other uses, according to sources in the community.

The proposed air-rights housing will increase the housing stock of Community Planning District No. 4 by two percent, offsetting only a small portion of the decline during the preceding decade, the rate of which is still continuing.

Donation to the City of air-rights space (versus site acquisition at fair market value) plus savings on foundation and utility connection costs have a value estimated at between $10.5 and $16.5 million, making it economically possible to provide for low- and moderate-income housing on the site.

C.6.(d) The Project as a Transitional Land Use

Comments by the U.S. Department of Housing and Urban Development (HUD) and Council of Chelsea Block Association directly or implicitly dispute the contentions of the Revised Draft Statement that the proposed mixed-use will (1) serve to stabilize the northern residential-commercial zone boundary of Chelsea, and (2) act as a visual and functional transition between zones. No basis is seen for modifying the Statement on these points. Compared to practical alternatives*, including a VMF alone or any combination of

*Housing on grade is not considered a practical alternative for reasons advanced in Attachment B.

commercial and industrial uses for which the block presently is zoned (see Figure II-12), the proposed action is seen as the most viable transition element.

The effects on Chelsea Park of many types of non-residential activity fronting on 28th Street associated with existing zoning would be more adverse than the VMF wall, particularly those types generating heavy truck traffic.

As recommended by the City's Parks, Recreation and Cultural Affairs Administration (PRCA), landscaping along the VMF wall will be provided to soften its visual impact at ground level. A tree canopy along the Chelsea Park side of 28th Street will further soften the impact of the wall.

C.7 INFRASTRUCTURE AND OTHER

C.7.(a) Geology

Geological information, including surficial and bedrock conditions and related engineering considerations, are discussed in Sections II.A and III.A.6.(c).

C.7.(b) Sewerage

Maximum sewerage effluents expected from the completed VMF-housing complex are as follows:

Component	Flow (cu. ft./second)
Housing Sanitary Sewerage	3.7
VMF Sanitary Sewerage	0.3
Storm Water Runoff (4-inch rainstorm)	16.0
Total Sewerage Effluent	20.0

Data obtained in consultations with the City Department of Water Resources indicates that the existing City sewer system has the capacity to accept the additional flow. The storm water component is approximately equivalent to the site runoff entering the sewers at present.

The New York City Sewerage Treatment Plant presently under construction on the west side of Manhattan is to be in operation by early 1978, the earliest date at which the housing component can be expected to be completed. Therefore, effluents from the housing component will not add to the present generation of untreated sewerage on the west side of Manhattan.

Discharges from the completed VMF portion will occur for a short period prior to completion of the City treatment facilities. As shown above, however, the VMF sanitary effluent will be minimal and is less than the effluent generated by the housing units that formerly occupied the site.

C.7.(c) Electric Requirements

Preliminary estimated electrical load requirements for the VMF-housing complex are as follows:

		Load Requirements (Kilowatts)	
VMF Component			
Lighting and Receptacle Load		2400	
Heating and Ventilating		1725	
Air Conditioning		190	
Elevators		75	
Miscellaneous Equipment		200	
	Subtotal	4590	
Housing			
General Lighting and and Small Appliance Load		3350	
Air Conditioning Load (window units)		2500	
Mechanical Load		75	
Elevators		450	
Fire Pumps		300	
	Subtotal	6675	
	TOTAL		11,265

Under normal conditions, the Consolidated Edison Company operates with a substantial amount of reserve capacity. Con Ed has indicated that the load requirements indicated above for the VMF-housing complex can be adequately supplied and amount to only a small fraction of the reserve power available to the New York metropolitan area.

Provision of supply facilities to fully provide for the highest power demand peaks would be economically impracticable. However, the Consolidated Edison Company, through various programs, is constantly trying to improve its ability to adequately cope with peak periods of demand occurring on hot summer days. The proposed project will have a marginal effect during such peaks as an additional power demand.

The window air conditioning units, required as part of the acoustical measures necessitated by existing noise levels at the site, constitute less than one-fourth of the total load requirements and will be in use only part of the year. Use of window units, as compared to central air conditioning, will require less energy use and is necessary to maintain low and moderate income rent levels.

C.7.(d) Steam Requirements

Estimated steam requirements for heating and miscellaneous uses in the proposed project amount to 66,000 pounds/hour, of which 20,000 pounds/hour are for servicing the VMF. Consolidated Edison Company has reviewed these needs and indicated ability to provide sufficient service within their present capacity. Consolidated Edison has presently and in the foreseeable future sufficient clean fuel allocations to maintain present capacity at their midtown plants.

C.7.(e) Fire Protection Codes

The project is being designed and equipped to conform with the most restrictive regulations, as appropriate, of the National Fire Protection Association, the New York City Fire Prevention Code, and other applicable New York City rules and regulations.

C.8 ALTERNATIVES

C.8.(a) Use of Non-Motor Vehicle Modes of Mail Delivery

See discussion under Section VIII.C.1.(a).

C.8.(b) Alternative Site: 30th-32nd Street Yards

An alternative site for the VMF is advocated by various groups within the Chelsea community. This site, first advanced at a series of recent meetings of Community Planning Board No. 4, would relocate the VMF to the city block bounded by 30th and 32nd Streets and by

Tenth and Eleventh Avenues, diagonally opposite the northwest corner of Morgan Station. Under this VMF relocation proposal the low- and moderate-income housing project would remain at the 29th Street site.

The alternative site, called the 30th-32nd Street Yards, is a substantially underutilized site occupied by two one-story industrial buildings, truck parking areas, and rail yards. A viaduct along the 30th Street boundary once provided rail access to Morgan Station but service was eliminated with the functional changeover of station from bulk mail processing to first-class (preferential) mail processing. Advantages as seen by those advocating this alternative are summarized in correspondence received from the Council of Chelsea Block Associations (see Attachment A).

For its part, the City's Housing and Development Administration (HDA), has requested analysis of the environmental viability of housing at grade on the 29th Street site. HDA, however, supports the "mixed-use" concept (VMF and air-rights housing) at the 29th Street site, noting that without it, "an opportunity to add a significant number of housing units to help stabilize the Chelsea residential community would probably be lost for the foreseeable future." (See Attachment A correspondence.)

Assessment of the impacts of a 30th-32nd Street Yards VMF and of housing at grade on the 29th Street site versus the proposed action are detailed in Attachment B.

Major findings are:

- The 30th-32nd Street Yards site will increase miles traveled by postal vehicles by a net of 500 miles (14 percent) over present mileage traveled and by a net of 400 miles over the proposed 29th Street VMF location.
- Resultant postal vehicle CO emissions in the VMF service area (see Figure I-4) would be 12 percent greater for the alternative site than for the proposed site.
- Traffic diversion to westbound 31st, 33rd, and 34th Streets resulting from closure of 29th Street under the proposed action would be averted, in large part, by use of the alternative site.
- No significant changes in local ambient air quality or noise levels would occur at either VMF location.
- The economic feasibility of low- and moderate-income housing at the 29th Street site would be jeopardized by added costs of site acquisition (versus donation of air-rights), and differential foundation and utility connection costs amounting to a cost penalty of \$10.5 to \$16.5 million (approximately \$12,000-\$19,000 per dwelling unit).

- The grade level environment for housing would be substantially less hospitable than the proposed air-rights environment, due to the visual impact of Morgan Station loading docks on 29th Street and greater noise levels and air pollutant concentrations at grade.

ATTACHMENT A

WRITTEN COMMENTS RECEIVED

On Revised Draft Environmental Statement

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10007

Class. ER-2

JAN 11 1974

Mr. Frank R. Pagano
Chief, Engineering Division
New York District, Corps of Engineers
26 Federal Plaza
New York, New York 10007

Dear Mr. Pagano:

We have reviewed the revised draft environmental impact statement (EIS) for the U.S. Postal Service's Manhattan Vehicle Maintenance Facility (VMF). In general this EIS adequately deals with the environmental impacts of the proposal. Several aspects however, need further study and clarification in the final statement and these are indicated below.

Several modifications have been made in the project from that which was presented in the first draft statement. These modifications, we believe, will make this project acceptable from an air quality standpoint. The objectionable decking and its associated problems have been eliminated from the final plans. Under worst conditions the carbon monoxide (CO) levels inside the residential towers atop the facility will most likely meet the CO ambient air quality standard. Increased ventilation of the facility itself will insure that indoor carbon monoxide levels will be considerably lower than originally estimated.

The subject of energy use was neglected in the EIS. The final impact statement should contain information as to the total quantities of energy which will be necessary to operate the VMF and associated housing units. Assuming that electricity consumption by the project will be an additional load on Con Edison's system, can the utility guarantee adequate service in light of its present chronic generating deficit? In addition, what percentage of the project's energy use is consumed by residential air conditioning? This should be considered since it is an environmental expense that is being taken in order to counteract other undesirable environmental conditions.

In the section on alternatives, one of the most obvious was not discussed, this is the construction of the VMF without the housing above it. The effects of eliminating this aspect of the project should be assessed, e.g. Will there be a critical lack of housing?

Presently, sewage from the area in which the VMF will be located receives no treatment. Ultimately such treatment will be provided when the City of New York expands its Newtown Creek Treatment Plant. However, no date has been set for this expansion to take place. Sewage from this facility, although it may be an insignificant increase, will be an addition to the quantity of untreated sewage presently being generated on the west side of Manhattan.

The noise section of this statement was well treated and presented. Both the FHWA standards and HUD requirements were recognized, and ambient noise conditions related to them. The increase in L_{10} values to be generated as a result of the activity will be in a range of magnitude that is usually labeled as "no impact" by the National Cooperative Highway Research Program report. However, the existing L_{10} levels, by themselves, indicate a high noise environment. For example, existing L_{10} sound levels reported for P.S. 33 range from 73 to 78 dBA. An increment of 5 dBA as a result of the proposed facility would raise L_{10} values to a range of 78 to 83 dBA. The high L_{10} values, represent unacceptable noise levels, especially during sleep hours. Some of these levels exist during the early morning - late evening periods. The L_1 values will in turn rise to extremely high levels, dramatizing an almost intolerable condition for sleep with windows open.

The statement indicates that the high noise levels in the area are due primarily to the existing high levels of commercial traffic on 9th and 10th Avenues. Therefore, a reduction in this traffic by a diversion to other routes, such as 11th and 12th Avenues which are non-residential, should result in decreased noise levels for the project area. The amount of reduction in noise levels that can be accomplished through this procedure should be studied and presented in the final statement. In addition the feasibility of implementing this type of program should be discussed with New York City officials involved with the project.

Because of the impact of increased ambient street noise generated by the construction of the facility, the special facade discussed in Section III. A. 3(c) should be constructed on the tower sides facing Ninth and Tenth Avenues so as to meet HUD requirements for housing construction.

The GSA construction noise limit criteria together with New York City noise code provisions should be applied to the VMF and housing project and closely observed during the excavation and construction period of the project. A barrier covering the perimeter of the site should be constructed to attenuate some of the noise from construction.

The Corps of Engineers has done an extensive reanalysis of the VMF project from what was presented in the original draft statement. It includes, as a result, modifications which we feel eliminate many of the criticisms we had of the original proposal.

Thank you for the opportunity to review this project. Please send us a copy of the final statement when it is completed.

Sincerely yours,

Paul H. Arbesman

Paul H. Arbesman
Chief
Environmental Impacts Branch

United States Department of the Interior

OFFICE OF THE SECRETARY
NORTHEAST REGION
JOHN F. KENNEDY FEDERAL BUILDING
ROOM 2003 J & K
BOSTON, MASSACHUSETTS 02203

ER 73/231

January 16, 1974

Mr. F. R. Pagano, Chief
Engineering Division
Department of the Army
New York District, Corps
of Engineers
26 Federal Plaza
New York, New York 10007

Dear Mr. Pagano:

In response to your request, the Department of the Interior recently concluded its review of the revised draft environmental statement prepared for the U.S. Postal Service vehicle maintenance facility proposed for construction in the lower West Side of the Borough of Manhattan, New York City. The Department reviewed the draft statement in March of 1973, and submitted its comments in April of that year.

Our initial comments on the draft statement for the most part remain unaddressed. Of foremost concern is the problem of outdoor recreation availability - particularly in this area of Manhattan - and the effects which the proposed development would have upon it. In discussing Chelsea Park, we cited a reference which, in its conclusions, differed considerably from the thoughts expressed in the draft statement. The revised draft statement adds no new information regarding Chelsea Park: indeed, the Study we cited (Plan for New York City, page 69, Manhattan Group 4, New York City Planning Commission, 1969) has not been mentioned in the revised statement. In the revised draft statement, the Parks, Recreation and Cultural Affairs Administration found "no major objections," but they did question impacts on Chelsea Park.

Also, we indicated previously that geological information, including surficial and bedrock conditions, as well as information on geologically related engineering problems and remedial techniques, should be included

in the environmental statement. We can find no indication that such information has been added to the revised draft statement.

A third area of concern involved five sites of cultural significance, and the possibility of adverse impacts as a result of project development. Again, we could find no evidence in the revised draft statement that the problem was considered, or that liaison was established with the State Historic Preservation Officer: Mr. Alexander Aldrich, Commissioner, Office of Parks & Recreation, South Swan Street Building, (Room 303), Albany, New York 12223.

The final statement should contain evidence of consultation with Mr. Aldrich and with the National Register of Historic Places.

Sincerely yours,

J. David Breslin

J. David Breslin
Special Assistant to
the Secretary

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGION II
FEDERAL BUILDING
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10007

January 9, 1974

OFFICE OF THE
REGIONAL DIRECTOR

Our Reference: ROFEC

Mr. F. R. Pagano
Chief, Engineering Division
New York District, Corps of Engineers
26 Federal Plaza
New York, New York 10007

Dear Mr. Pagano:

Subject: EIS #049-01-74
U. S. Postal Service's Manhattan
Vehicle Maintenance Facility

This office has reviewed the draft environmental impact statement for the subject project. While the EIS is in general quite comprehensive, we do not think that the impact of the 860 unit housing project on health services has been adequately explored. The following questions should be addressed in the final statement:

1. How do you anticipate the inpatient and outpatient needs of the housing project population will be met? What studies have been conducted to determine the availability of area health personnel and facilities? What agencies were contacted?

2. What specific services are being offered by the Lower West Side District Health Center?

Sincerely yours,

Bernice L. Bernstein

Bernice L. Bernstein
Regional Director

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
NEW YORK AREA OFFICE
120 CHURCH STREET
NEW YORK, NEW YORK 10007

REGION II
26 Federal Plaza
New York, New York 10007

IN REPLY REFER TO:

FEB 8 1974

Mr. F. R. Pagano, Chief
Engineering Division
Department of The Army
26 Federal Plaza
New York, N.Y. 10007
New York District, Corps o Engineers

Dear Mr. Pagano:

Subject: United States Postal Service
Manhattan Vehicle Maintenance Facility
Comments on Revised Draf E.I.S.

We forward herewith our comments on subject draft statement, emphasizing that these comments do not constitute a HUD environmental clearance of the proposed housing project which is associated with the VMF and for which federal interest-reduction subsidies and/or public housing leasing assistance may be sought by appropriate public agencies in the future.

A. The draft statement, on page II-28, reports that the Housing and Development Administration (HDA) of the City of New York "promised low-and moderate-income housing for the air rights project under Federal FHA 236 program financing, with some units provided for the elderly and some for public housing".

Prior to issuance of the final statement, HDA should be contacted and given the opportunity to review and revise that paragraph which contains, we believe, several inaccuracies.

B. The draft statement, in assessing the impact of VMF operations on the acoustical environment, may not contain noise level projections clearly adequate to interface HUD regulations. However, the projections provided on page III-24, which demonstrate significant increases in the L1 and L10 levels during three of the four hourly periods analyzed, strongly suggest that the L4.2 value of 79.5 per 24 hours displayed on Figure II-8 will increase above the critical threshold of 80 dB(A) post-development, especially when "the combined effect of postal, apartment and rerouted traffic will increase the volume on Ninth Avenue south of 29th Street by roughly 100 vehicles per hour" during the AM peak traffic period (8-10 AM), (page III-2), and to some lesser extent during other time periods.

Not only would it appear that the portion of the site fronting on Ninth Avenue will fall into HUD's "unacceptable" category because the 24-hour

cummulative noise exposure will exceed 80 dB(A) for 60 minutes post-VMF development, but we also anticipate "unacceptable" levels of intrusive noise on the 29th Street side of the proposed housing site to be generated by the combination of 2,200 daily postal vehicle (trucks) movements into and out of VMF and an additional 1,023 daily PMC vehicle movements into and out of the Morgan Station truck loading docks facing the VMF across 29th Street, especially in view of "the use of the street for maneuvering," as described on page I-5 of the draft statement.

The final statement should address the issue of projecting the intrusive noise levels (L4.2 values) following the proposed VMF development.

C. The draft statement, on page III-28, reports that the facades of the towers facing Ninth and Tenth Avenues are to be constructed with "double windows and air conditioning." The final statement should indicate:

   (1) whether the proposed acoustical treatment of apartments facing the avenues will result in interior noise exposures defined as acceptable in HUD Circular 1390.2;

   (2) whether acceptable interior noise exposures can be attained without special acoustical treatment of apartments facing the side streets. We note on page III-5 that "the peak period of VMF activity will occur between 5 A.M. and 7 A.M.," and we note in tables I-1 and B-3, that approximately 530 postal vehicle movements (all trucks) will occur in that two-hour time period, with more than 630 additional postal vehicle movements (all trucks) between 11 P.M. and 5 A.M. (HUD interior noise exposure standards limit exceedance of 45 dB(A) to a cumulative 30 minutes during the night-time sleeping hours from 11 p.m. to 5 a.m.); and,

   (3) whether the acoustical treatment proposal, as revised after consideration of the above, is financially feasible for the proposed subsidized housing project.

D. The final statement should describe the possible methods of evacuating VMF exhaust emissions in the event that new housing is not constructed above the VMF. In calculating carbon monoxide concentrations at the critical receptors, and most particularly at the French Hospital and at the apartment building (which is part of a completed Federally-assisted urban renewal project), background values should be incorporated into the calculations to determine if the incremental contributions of CO due to VMF vent exhaust discharged from the VMF roof would cause air quality degradation to a point exceeding Federal standards.

E. Since the design and construction of foundations for the VMF will constrain the location and size of the proposed apartment buildings, Section V should include a consideration of alternative site design, especially those which would enhance the proposed residential environment by promoting noise attenuation and CO concentration decay by distance from pollution sources. Among the alternatives which should be addressed are:

(1) greater set-backs of the apartment towers from Ninth and Tenth Avenues; and,

(2) reorientation of the apartment buildings along an east-west axis to provide minimal, end-wall exposure to the Avenue traffic flow and built to the 28th Street property line so as to maximize the influence of Chelsea Park and to create a substantial space buffer between the housing and 29th Street.

The statement should also consider varying the heights of the two apartment towers and to vent exhaust emissions from the taller structure so as to more reliably avert potential air quality impacts on upper floors as described on page III-19.

F. Sections VI and VII should be revised to dilute the claim that the proposed mixed-use development -"...should help to stabilize the boundary (between residential and industrial-commercial zones) and community change, while providing a visual and functional transition between zones." (page VI-1)

It should be noteo that Chelsea Park, located one block south of the VMF site, now serves that function much more effectively, by providing a substantial open space buffer between residential uses and non-compatible industrial-commercial uses to the north.

Thank you for extending the time limit for comments.

Sincerely,

Margaret M. Myerson
Director
Operations Division

OFFICE OF ECONOMIC
OPPORTUNITY

EXECUTIVE OFFICE OF THE PRESIDENT
REGION II
26 FEDERAL PLAZA
NEW YORK, N.Y. 10007

December 1, 1973

Mr. F. R. Pagano
Chief, Engineering Division
Department of the Army
26 Federal Plaza
New York, New York 10007

Dear Mr. Pagano:

Thank you for the copy of the Environmental Statement relating to the Vehicle Maintenance Facility. OEO has no negative comments on this proposed project at this time.

I am sending the Environmental Statement to Commissioner Major Owens of the City Community Development Administration. CDA is our local grantee with jurisdiction over the geographic area in question. If Commissioner Owens has any comments, he will forward them directly to you.

Sincerely,

David L. Lollis
Assistant Regional Director

cc: Commissioner Major Owens, CDA

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION ONE

New York Division
16 Russell Road
Albany, New York 12206

January 11, 1974
IN REPLY REFER TO:
01-36.4A

Mr. F. R. Pagano
Chief, Engineering Division
Department of the Army
New York District, Corps of Engineers
26 Federal Plaza
New York City, N. Y. 10007

Dear Mr. Pagano:

We have reviewed the draft environmental statement submitted by your letter of November 28, 1973 for the proposed U. S. Postal Service's Manhattan Vehicle Maintenance Facility.

We have no comment on the content of the statement as we consider that it adequately discusses the impact on highways.

Sincerely yours,

For John G. Bestgen
Division Engineer

The City of New York

FIRE DEPARTMENT
110 CHURCH STREET NEW YORK, N. Y. 10007

OFFICE OF CHIEF OF DEPARTMENT

December 18, 1973

Department of the Army
New York District, Corps of Engineers
26 Federal Plaza
New York, N. Y. 10007

Att: F. R. Pagano
Chief, Engineering Division

Dear Sir:

We have reviewed the revised draft environmental impact statement which you forwarded to us.

The only comment we have is in reference to the first paragraph of Section A.6 (c), Page III-34. This paragraph does not refer to the N. Y. C. Fire Prevention Code and other applicable N.Y.C. rules and regulations.

We recommend that the statement include compliance with the N.Y.C. Fire Prevention Code and other applicable N.Y.C. rules and regulations, as well as the National Fire Protection Codes. In the event there is a conflict, the more restrictive regulation shall apply.

Very truly yours,

Augustus A. Beekman

Augustus A. Beekman
Chief in Charge
Division of Fire Control

AAB:PS:eh

The City of New York
DEPARTMENT OF HEALTH
125 WORTH ST., NEW YORK, N.Y. 10013
Telephone: 566-6016
BUREAU OF SANITARY ENGINEERING
93 Worth Street, Room 709
New York, N.Y. 10013

January 11, 1974

F.R. Pagano, P.E.
Chief, Engineering Division
Department of the Army
New York District, Corps of Engineers
26 Federal Plaza
New York, N.Y. 10007

Dear Mr. Pagano:

Reference is made to your memorandum of November 28, 1973 on the subject of Revised Draft Environmental Statement, U.S. Postal Service's Manhattan Vehicle Maintenance Facility.

This Department has reviewed the revised draft from a public health engineering viewpoint. No negative comments were recorded.

Very truly yours,

John De Zuane, P.E.,
Director
Bureau of Sanitary Engineering

JDZ:jk

The City of New York

HOUSING AND DEVELOPMENT ADMINISTRATION
100 GOLD STREET, NEW YORK, N. Y. 10038

ROGER STARR, Administrator, (Temp.)
Commissioner of Development

January 22, 1974

Army Corps of Engineers
26 Federal Plaza
New York, New York 10007

Attn: Lt. Col. Richard Thompson

Re: Morgan Annex Vehicle Maintenance Facility -- Environmental Impact Statement

Gentlemen:

The following constitutes the official statement by the Housing and Development Administration on the Impact Statement for the Morgen Annex Vehicle Maintenance Facility Project.

Land Use Concept

The Housing and Development Administration strongly supports new housing for the Chelsea community and recongizes the site between 28th and 29th Streets, 9th to 10th Avenues, as appropriate for housing in terms of access to local shopping, schools, recreation, health and community facilities and public transportation. We also approve of the concept of a dual-use facility, given the extraordinary costs of land and land assemblage in mid-Manhattan. Without this mixed use approach, an opportunity to add a significant number of housing units to help stabilize the Chelsea residential community would probably be lost for the foreseeable future.

The New York City Department of Planning found that an R8 district, which would permit construction of approximately 870 dwelling units, is compatible with existing densities in the Chelsea community. The present scheme, mixing towers and low rise elements, permits the generous development of open space useful particularly to elderly residents and children.

Lt. Col. Thompson
re: Morgan Annex Vehicle Maintenance Facility
Environmental Impact Statement
1/22/74

Comment

II-28 contains a misleading statement regarding HDA's "promise" of low and moderate income housing. We support construction of low and moderate income housing in Chelsea but HDA cannot commit funds it does not control. Our commitment is conditioned upon the availability of necessary subsidies from the federal government.

Alternatives

We suggest that this section be expanded in its discussion of the various alternative solutions.

While data included in the report could be interpreted to show that future site residents are better protected from existing and predicted levels of noise and air pollution at the proposed deck level and above than they would be at grade, this is left unstated in the report. We feel that such an analysis is critical to any serious evaluation of the site for housing only. Since housing is a mandated use on the site along with the VMF, such an analysis should be included in the final Impact Statement.

Sincerely,

Barry Zelikson ar

Roger Starr
Administrator (Temp.)/Commissioner
by Barry Zelikson

The City of New York Parks, Recreation and Cultural Affairs Administration PRCA

The Arsenal
830 Fifth Avenue, New York, New York 10021

Edwin L. Weisl Jr
Administrator Commissioner of Parks

Telephone

January 15, 1974

Mr. F.R. Pagano
Chief, Engineering Division
Department of the Army
New York District, Corps of Engineers
26 Federal Plaza
New York, New York 10007

Dear Sir:

We have reviewed the Draft Environmental Impact Statement for the construction of the U.S.P.S. Manhattan Vehicle Maintenance Facility. The main concern of PRCA is Chelsea Park, which is currently undergoing major rehabilitation. We wish to insure that neither the new facilities nor the convenience of the park users will be jeoprodized in any way.

We, therefore, would like to reiterate several of the points made in our original comments. First, the construction period should be minimal in length. All appropriate measures should be taken to reduce noise and air polution while work is underway. The entire construction site should be fenced, and storage areas should be restricted to sites north of 28th Street to minimize polution effects on the park. Appropriate landscaping at ground level should also be provided once construction is complete.

Thank you for your time.

Sincerely,

Edward M. Dweck
Assistant Administrator
for Design

The City of New York

TRANSPORTATION ADMINISTRATION
XXXXXXXXXXXXXXXXXXXX Administrator
Michael J. Lazar,

OFFICE OF PLANS AND PROGRAMS
40 WORTH STREET, NEW YORK, N. Y. 10013
Telephone: 566-3960

JOHN M. KAISER, P.E.
Deputy Administrator

TAD-A3-106.15

JAN 10 1974

Mr. F.R. Pagano
Chief, Engineering Division
Department of the Army
New York District, Corps of Engineers
26 Federal Plaza
New York, N.Y. 10007

Dear Mr. Pagano:

Reference is made to your letter of November 28, 1973 re: Revised Draft Environmental Statement, U.S. Postal Services' Manhattan Vehicle Maintenance Facility.

As you know, this office reviewed the December 15, 1972 draft statement and by letter dated April 6, 1973 transmitted our comments related thereto.

The November 15, 1973 revised draft has not taken into account our earlier comments and they are therefore restated for incorporation in the final impact statement. As the operators of the City's street system we consider these comments to be important and indeed reflect the operating conditions which we will insist upon when your facility is placed in operation.

Our comments follow:

1. The report assumes that 29th Street will operate two-way during non-public hours. For reasons presented earlier this assumption is incorrect and inconsistent with what was agreed to.

2. On Page 2 of the statement is found the following:

   "...the Postal Service will provide all necessary signs, barriers, pavement markings and other traffic control devices necessary for the safe use and operation of the street."

   The street is to be open for use by all vehicles during peak hours and therefore the Department of Traffic will install the necessary traffic control devices.

3. The report still maintains a zero percent growth in vehicular traffic for the area without the facility which is inconsistent with our projections for the westside of Manhattan.

I would be pleased to discuss this matter in greater detail at your convenience.

Very truly yours,

John M. Kaiser

JOHN M. KAISER
Deputy Administrator

COUNCIL OF CHELSEA BLOCK ASSOCIATIONS

MEMBER ASSOCIATIONS

18TH ST. (300 BLOCK)
19TH ST. (300 BLOCK)
20TH ST. (300 BLOCK)
20TH ST. (400 BLOCK)
21ST-22ND STS. (300 BLOCK)
21ST-22ND STS. (400 BLOCK)
24TH ST. (400 BLOCK)
25TH ST. (400 BLOCK)
~~29TH ST. (300 BLOCK)~~

460 W. 23rd St., Apt. 2-B
New York, N.Y. 10011
January 11, 1974

U.S. Army Corps of Engineers
26 Federal Plaza
New York, N.Y. 10007

RE: PROPOSED POSTAL SERVICE VEHICLE MAINTENANCE FACILITY ON MORGAN ANNEX SITE

The revised draft environmental impact statement (EIS) for the proposed U.S. Postal Service Vehicle Maintenance Facility (VMF) and housing on the Morgan Annex Site, the New York City block bounded by 28th and 29th Streets, 9th and 10th Avenues, admits on page III-35 that "the net effect of the project can be only qualitatively assessed." We accept that statement. We who live here will in the years ahead be making just such assessments. Already, we are bringing to bear in our reaction to the proposal our criteria of the kind or quality of life we want for ourselves and our children. And perhaps that is why as we read the reiteration of "no impact" throughout the report, we come to wonder increasingly whether this document is the 20th century version of the old tale, "The Emporer's New Clothes."

It strains our credulity to be asked to believe that the introduction of more than 900 Postal trucks making some 3,200 trips daily through our community and the vehicles of the 1,200 VMF-based drivers and 300 garage employees who will work at the VMF and those of the residents of the 864 air rights apartments will have no impact on us. We find it hard to believe that trucks starting up in the early morning and late evening hours will have no effect on sleep of ordinary humans. We cannot believe that the closing of the 29th Street block will not affect traffic south of the site--adversely.

We the citizens of Chelsea--not the planners--will have to live with any miscalculations, any premises that prove unwarranted. That is why we raise our concerns.

Basic Assumptions and Methodology

In a prepared statement presented at the January 8 public hearing on the project, a representative of the Corps of Engineers tried to explain why the EIS is able to report, "no impact." He said that "the impact of a project on the environment depends on the environment in which it's built. If you take the Vehicle Maintenance Facility and you put it out in the middle of a cornfield in Iowa, obviously it's going to have a much greater impact than it would here. If a project being

considered is the construction of a stereo radio set, obviously that stereo radio set is going to have a much greater impact in the middle of a library than it will in the middle of a steel factory. So you have to recall that the existing environment has an effect on the impact of a proposed project."

Additionally, the EIS on IV-1 states that "Above standard levels would still be found outdoors but these conditions are common in similar urban environments and are generally tolerated by urban dwellers."

The assumption behind these statements is that the problems of the area are already so severe that residents will not notice an increment. We question this assumption. An empty cup can easily accommodate a tablespoon of water, but if the same amount of liquid is poured into a cup already brim full, it will cause an overflow.

Furthermore, with statistical analyses that begin from a base of existing severe conditions, a large amount of added contaminants or noise becomes a small or "insignificant" percentage. If such methodology is the basis for the reiteration of "no impact," (and the Corps of Engineers statement quoted above makes it apparent that it is), we must strenuously object to the basic assumption and the methodology deriving therefrom.

We note also the absence of any stated tests of statistical validity for any of the figures given in the EIS and request that such tests be done and described. Without them, the validity of the entire study must be questioned. Estimates of the accuracy of the models and the ranges of reliability within which they are valid are also missing.

Table B-5, page B-13, shows a breakdown of the daily movements of Postal vehicles, attempting to demonstrate how vehicle mileage of the most serious polluters would be reduced. The net effect, according to a statement on page 2, is a 20% reduction in vehicular pollution for Manhattan.

This gain is achieved by adding approximately 1,550 truck trips to the Chelsea area. However, according to a statement of the consultant who prepared the report (made at the January 3 public hearing), the benefits of closing 29th Street will more than cancel out the effect on the surrounding neighborhood. The various projections and charts show numbers that support this statement. We question, however, the logic and arithmetic behind the charts. Specifically, six factors seem to have been ignored or seriously understated in the calculations:

1. Worker cars: There will be 1,200 drivers and 300 garage employees who will have to go back and forth each day to work; not all of them will come by subway.

2. Resident cars: Residents of the 864 apartments can similarly be expected to own cars, some of which they will be using during peak hours to go back and forth to their own places of employment.

3. Opening of 29th Street to several hours of rush-hour traffic: This will also add vehicular emissions and noise. Note that this will be

during the street's peak period and will generate 650 vehicles per hour, according to the EIS.

4. Diversion of traffic: Not all traffic diverted from 29th Street will flow onto streets north of the VMF. Since 9th Avenue is one-way southbound, some of this traffic will wind up on other Chelsea residential streets.

5. Emissions from the garage: Not all the fumes and pollutants generated by trucks moving around the garage will disappear forever into the atmosphere. Though at the public hearings the Corps of Engineers representatives seemed to deny that what goes up must come down, we feel that particulate matter, especially, tends to settle.

6. Reconfiguration of the West Side Highway: Various alternatives proposed by the project involve a boulevard at ground level or above, increased truck traffic generated by an interstate highway, etc. Exits would also probably be repositioned, affecting traffic patterns on local streets.

Each of these factors affect the projections of the EIS; we would like to know if, and how, they have been taken into consideration. Furthermore, we would like to know their cumulative effect--the whole is often greater than the sum of its parts. It should be noted, for example, that the cars of 1,200 drivers, 300 garage employees, and 264 resident households potentially add up to four times the 502 light-duty Postal trucks mentioned on page I-6 of the report. Finally, we would like to know how these factors would interact under adverse atmospheric conditions. Low probabilities and reassurances are not satisfying. The probability of a prolonged air inversion trapping steel mill pollution over Donora, Pa., was undoubtedly very low.

The various projections of pollutants and noise from traffic and from the activity within the VMF are computed separately. But their effects will not be thus separated when they impact upon this community. We request therefore that cumulative values be calculated, taking into account all sources of pollution and noise generated by or altered by the existence of the VMF. Thus, the 29th Street diversion effect on non-Postal vehicles would be added to those of Postal vehicles as would the emissions from VMF stacks and doors, as well as 29th Street idling.

The EIS on III-21 states that "to assure the best possible environmental conditions within the garage the exhaust ventilation system will double its normal exhaust rate during emergency traffic conditions." This statement makes it obvious why cumulative totals should be computed.

We request, further, that pollution and noise levels be computed to take into account all options now being seriously considered by the West Side Highway Project. Planning for the VMF and for this roadway should take cognizance of each other since their effects on the community will be cumulative.

Energy Crisis

In the time since plans for the VMF were initiated, a new factor has come to the fore--the energy crisis. The planners obviously could not have been expected pre-

viously to take this factor into account, but in view of predictions that the crisis may continue for a decade, they now must.

The assumption that air quality will be markedly improved by 1980 is now obviously open to question. At the January 3 public hearing, a representative of the consultant firm indicated, in response to a question, that impact projections for 1980 in the EIS were based on implementation of federal standards for emission controls on trucks by that date. According to an article in the New York Times of Saturday, October 13, 1973, however, no pollution curbs for trucks exist at this time and cannot be expected until at least 1979 or 1980. Since there has already been a relaxation of the implementation of these standards and since the unstable fuel and automotive production situations may result in a further loosening of standards because of the effect of control measures on fuel consumption, we request that in addition to computing values based on imposition of emission controls, the values without such curbs also be computed in order to realistically assess the possibilities.

Additionally, the energy crisis may cause a reversion to the use of more polluting fuels than now allowed. We request, therefore, that all values be recalculated to take into account this potential change in background pollution.

We question strenuously the contention on III-34 that Con Edison can supply electricity, steam, and gas for the combined facility without adverse effects. This city is already having brownouts in the summer, voluntary reductions of electrical and steam usage in the winter. Power has been cut by a few percentage points throughout the city. This facility is being designed for conspicuous energy consumption. The rest of the city is already curtailing intake. We would like a more detailed explanation of how the demands of this facility are to be met.

Noise Pollution

According to the EIS (III-22-30), background noise is expected to remain at present levels and existing noise levels are considered "Normally Unacceptable" for new housing construction by HUD standards. And, we must conclude, they would therefore be unacceptable for existing residents as well. Applying general standards of the National Highway Research Program, the writers of the EIS concluded that the increase in noise levels would have "NO IMPACT" (capitalized in report). In other words, the VTF would cause the neighborhood noise levels to become only slightly more unacceptable and would be "just noticeable in the field." The statistical fallacy involved here is that there is no upper limit. While the residents of the proposed housing would be protected from existing and increased noise levels by air-conditioning and double-paned windows, others surrounding the site, particularly the residents of Penn South and Chelsea-Elliott Houses, would not be so fortunate. We do find it curious that double paning would not be required on the 29th Street side. And we note the anomaly in the architectural drawing of the proposed facility of terraces on all floors of the housing on both 9th and 10th Avenues.

We residents of the neighborhood feel that the appropriate role of our government, when it has acknowledged a "Generally Unacceptable" situation, is to work to make it acceptable, not increase it just a tiny little bit.

On III-24 and III-23, it is indicated that the "NORMALLY UNACCEPTABLE" sound measurements that were used as the basis for impact projections were taken from the roofs of P.S. 33 and a Penn South building. We request that the readings for Penn South particularly be recalculated based on measurements at a midpoint in the living unit area of the building. We request, further, that a first-floor reading be taken for the building across the street from the proposed VHF.

We request too that there be a recomputation to include noise from within the VHF itself. Repairing, painting, parking, starting are not silent operations.

An averaged figure for noise is also questionable. Computation should take into account the jolts of starting, gearing up. Anyone who has ever stayed in a motel near a highway interchange can attest to the effect on sleep of large trucks gearing up.

Air Pollution

We find it cynical indeed that the EIS brushes aside consideration of improvement of the environment in this residential community, by noting, on III-21, that levels of hydrocarbons and oxidants will not meet standards by 1980. Why add to our burdens in doing so? This community is concerned about existing pollution levels. One suggested remedy, in fact, is restriction of truck traffic on 9th Avenue.

We note the absence of any discussion of particulate matter or sulfur oxides, for which specific national standards have been issued. We request a correction of this oversight.

Comparative nitrous oxide emissions (table C-4, page C-13) projected for West 25th Street between 9th and 10th Avenues show that with the VHF, these emissions at morning peak hours in 1980 would be more than double those without it. Curiously, these emissions are calculated to be only 15 units higher on the 9th Avenue block bounding the VHF but more than 300 units higher on the 9th Avenue segment between 26th and 25th Streets. West 28th Street between both 10th and 9th and between 9th and 8th and West 26th Street from 10th to 8th Avenues show no similar increases. Where is the increased source of pollution on 9th Avenue between 26th and 25th Streets coming from? Why will 25th Street levels double?

We question that carbon monoxide levels in 1980 with the VHF would be lower than those without this facility, as stated on III-11.

On III-13, it is stated that "Morgan Station and the VHF structure will form a street canyon where pollutants may accumulate." Yet we are expected to believe that carbon monoxide concentrations in the "recreation area" for the apartment residents will be quite low. Where are the pollutants being dispersed if not up into this area? If the argument is that they will fall, then the statements about dispersal from the VHF stacks not falling on the surrounding residential area must be reexamined.

Also on III-13, concern is expressed for carbon monoxide levels inside the apartment complex, such as were found in a General Electric Study of the Washington Bridge Houses. The solution at the VMF is completely sealing the housing unit from the garage itself and from the flu for pollutants. Most building materials are porous, and we wish a more detailed explanation as to how the structure will be made impervious to carbon monoxide seepage.

On III-19, it is stated that the highest levels of carbon monoxide will occur between 5 and 8 a.m. This is a period when most people are sleeping and therefore most vulnerable to the effects of carbon monoxide. No one will notice the onset symptoms and make efforts to avert disaster. The American Medical Association this year has sent out at least two news releases about the dangers of carbon monoxide, a clear, odorless poison that binds to hemoglobin 200 times more readily than oxygen. Increasingly, too, medical researchers are documenting the adverse cardiovascular effects of chronic exposure to carbon monoxide. We request, therefore, extreme caution in implementation of any plans that increase ambient levels of this toxic pollutant.

On III-16, the EIS states that the primary effect of hydrocarbons "is on vegetation (not a factor in this area). . . ." The sidewalk across the street from the Morgan Annex site on 29th is bordered by a magnificent double row of London planes, which remind some residents of the amenities of Paris. In Penn South, grass and trees have been nurtured. The statement in the EIS is obviously inaccurate. We request that the effect on vegetation in the area be analyzed and reported.

On III-17, several "critical receptors" are listed as having been considered in terms of environmental impact. We note the following omissions and request that they be included in the next EIS: Housing on 29th Street between 8th and 9th Avenues, Chelsea Park, and Chelsea-Elliott housing. The reasons are proximity and possibly sensitive persons at the latter two sites in particular.

Traffic

On III-2, the EIS states that nearly 600 added vehicle miles per day by small Postal trucks will be "primarily along uncongested Ninth and Tenth Avenues south of the VMF and should produce no signficant change in traffic operations." The avenues for which this added traffic is proposed run through the residential sector of this community. In fact, 9th Avenue might well be considered the spine of the residential area. Community residents are anxious to reduce traffic--particularly that of trucks--down this artery. This avenue is a street that many children must cross to get to P.S. 33, P.S. 11, and St. Columba's School. It deserves careful attention.

Community concern about bettering the Postal traffic situation at the expense of the immediate neighborhood have been countered with statements to the effect that all of this traffic would be here anyway, with or without the VMF. This appears to be a misstatement. Table I-1 on I-9 shows that in addition to the 2,214 daily vehicle movements associated with the Preferential Mail Center (PMC) at Morgan Station, there will be 1,760 daily movements related to the VMF only. Presumably

these are by the trucks that will be deployed to various local stations throughout the vast area of Manhattan this VMF will serve.

We have major concerns as to the effect of the proposed closing of 29th Street through most of the day. The EIS concentrates on effects to the north and omits discussion of effects in the residential area to the south. We ask that this oversight be corrected with the inclusion of such data as origin and destination studies to realistically assess the effects of the closing of 29th Street 22 hours a day along with the introduction of 3,200 Postal truck trips originating from the VMF.

What is the basis for assuming, on III-5-7, that the closing of West 29th Street will divert traffic only north of the site? What is the basis for assuming that enforcement of existing parking regulations will be rigid and effective? The EIS itself notes, on III-5, that "In practice, however, the parking of vehicles on both sides and truck loading operations restrict flow at most times to one effective lane of moving traffic."

On I-5 of the EIS, it is stated that 29th Street will be opened for non-Postal vehicular traffic during the evening rush hour, from 4:30 to [illegible]:30 p.m. This proposal seemingly fails to take into account that 29th Street is now the truck route to the Lincoln Tunnel. Rush-hour traffic, therefore, is only part of the problem. And what happens to the driver who does go west on 29th Street every evening during rush hour but one day makes a trip at midday?

The description on III-36-37 of projected traffic circulation again is premised on northward diversion of traffic from westbound 29th Street. Would it not be more likely that a driver coming down 9th Avenue would be forced to go at least as far south as 28th Street, make a turn to the east (through Penn South) and then go back up 8th Avenue to have another swing at getting to the west? The other possibility that seems obvious is going down to 25th Street, which is the first open westbound street.

As a remedy for the situation created by the 29th Street closure, the EIS repeatedly refers to adequate enforcement of existing traffic regulations to free up the flow of traffic on blocks to the north of the site. In response, we must repeat our question: Why should such enforcement be expected to be any more effective in the future than it is now?

And if the vast majority of vehicles are indeed diverted to the north of the site, why has no study been done of the impact of this diversion on the residential area of 34th Street between 9th and 10th Avenues?

Another suggested remedy is adequate signing, pointing to 23rd as the preferred alternate route south of 29th Street. West 23rd from 9th to 10th is solidly residential. If the West Side Highway is rebuilt without an exit in this area (as present "build" proposals indicate), the possibility is real that this street may be redesignated so that it is more compatible with the residential community that borders it from 10th to 7th Avenues. But even with the present situation, is it logical to think that drivers will want to travel the additional six blocks to this two-way street? Aren't they more likely to make a turn at the first opportunity,

particularly if their destination is the Lincoln Tunnel? West 25th Street between 9th and 10th is a residential street. It is already troubled by trucks going to the commercial area to the west. Other trucks are bound to follow suit.

Parking

On III-7, in discussing parking demand, the EIS mentions that the 1,500 employees of the VTF will increase parking demands in the area, as will the elimination of the parking area on the Morgan Annex site now used by some 50 Postal employees. Where will these people park? If they are forced to park on the street, won't this mitigate against the effect of anticipated enforcement and instead add to congestion?

Is the notion to tear down more housing to make way for these vehicles? On IV-1, the EIS recognizes that the VTF may create additional demands for parking in the area, "incrementally increasing the pressure for conversion of off-street properties to parking lots. This process is a factor in the housing loss suffered in the Chelsea-Clinton community during recent years." Why aggravate the situation?

Urban Form and Social Impacts

We question any design for new housing that so goes against such recent research findings as are reported in Defensible Space by Oscar Newman (MacMillan, 1972). This report is acknowledged on III-31, but there is no evidence that its precepts have been heeded in the planning of the housing atop the VTF.

On III-38, the EIS states: "Adverse social implications of high density will be minimized by developing the housing project consistent with R-8 zoning allowance, making it consistent with the adjacent residential community." On III-31, it is stated that "the apartment component of the project is compatible with adjacent public and cooperative housing projects which fall within R-8 district."

These statements fail to take into account that the proposed housing is to be built not at ground level, as is other housing in the area, but atop the VTF. The scale of the proposed VTF, which will ring the block with a wall towering 60 to 80 feet high enclosing an industrial-use facility, is not harmonious with the surrounding neighborhood. It is an affront to the sensibilities of the residents of this area. An 80-foot-high windowless wall is not a good neighbor. It cannot but affect pedestrian traffic. With little foot traffic on the street, getting to the housing at 10th Avenue could be very dangerous indeed. West 25th Street bordering the wall could become a muggers' alley and Chelsea Park to the south a muggers' haven.

Chelsea Park will be affected by this wall because it will diminish opportunity for "natural surveillance" by residents of the housing. A view from the 9th floor of a building (the effective height of a first-floor apartment in the proposed facility) differs markedly in angle of view and proximity from that of a person at ground level or on a second story.

Because of the [illegible] and the greater number of floors in the proposed apartment towers than in adjacent housing, we find it difficult to understand how these proposed buildings can be said to be compatible with adjacent public and cooperative housing projects. The towers will be half again as high as the tallest existing buildings in the area. That is not visually compatible.

Further, the orientation of the towers, rising at the block ends, seems to be bad site planning. Positioning these towers in this fashion fails to take advantage of the park view to the south and also blocks out the view from Penn South toward the Hudson.

On III-24, development potentials without the VMF are cited. We take exception to the statement that the site would be released for private development, as stated in that section of the EIS and reiterated on V-1. A further statement on this point occurs on III-30: "The proposed project is more in keeping with the community than development which might occur under current commercial-light manufacturing zoning policy for the site." Because of the problems mentioned above, we dispute that the proposed project is more in keeping with the community than other development. We would point out also that previous usage was predominantly housing.

But we have a more basic objection to these statements. Public Law 92-313 states that if a contract for the construction of the VMF is not let within 24 months after certain provisions are met, "the United States Postal Service shall convey to the City of New York, at fair market value, all right, title and interest in the above-described real property. Such conveyance shall be made on the condition that such property shall be used solely for public housing purposes. . . ." We must wonder why this development potential was not mentioned in the EIS. In the interests of fairness, we believe that this possibility must at least be mentioned. To do otherwise is to hide from public view the requirements of an existing law of the land.

At the January 3 public hearing, a representative of the Postal Service indicated that fair market value would preclude public housing. Normally, fair market value is determined by a process of bargaining. We question how the Postal Service can rule out the possibility that after bargaining in good faith the fair market value might not be determined to be $1.00, amicability, and reconciliation. After all, the section immediately preceding that pertaining to the Morgan Annex Site in Public Law 92-313 directs that the Postal Service convey certain property to the City of Carbondale, Illinois, "at no cost."

The EIS states on III-31 that no significant land use changes are expected in the vicinity as a result of the VMF. The one "minor exception" noted is a potential increase in the tendency for "conversion of older residential properties to off-street parking areas." In Chelsea, such properties have been sought out by persons of moderate means for renovation and owner occupancy. Such housing has been a source of attraction for a stable middle class to the neighborhood. In most urban areas today, center cities are being deserted by the middle class. Chelsea can certainly be described as "center city" since it borders the midtown commercial area. Yet here in Chelsea the middle class has come in and put down roots. Because

of the reversal of a national trend, century-old houses in Chelsea have taken a new lease on life. The possibility of such home ownership in center city, we feel, should be encouraged rather than prevented by an incremental increase in parking lots..

The EIS section on community services (II-28-29) fails to assess the local retail situation in relation to the proposed air rights housing. On III-32, however, the impact on the local retail market is viewed as expanding. Where? Where will the residents of the apartments shop for groceries, have their clothes cleaned, their shoes repaired? This is not an idle question, for no retail enterprises now exist on the blocks ringing the site--or even nearby blocks. Furthermore, their establishment is precluded by present land usage on three sides and is questionable on the fourth.

Incorporation of needed retail businesses on the "plaza" level will surely bring about a captive market, with a "company store" atmosphere prevailing. What safeguards from exploitation are being devised to protect the low and middle-income tenants of the proposed housing?

On II-29 and III-33, the impact on the capacity of the services of the Lower West Side Health Center is mentioned, and it is concluded that these services can be expanded to meet the needs generated by the proposed housing complex. Is it logical to assume that all the residents of the VMF housing will get all their health care at this facility? What of the services rendered by French Hospital, St. Vincent's Hospital, and private physicians, optometrists, and dentists? Is it not much more likely that residents will turn to these sources of health care than the day-time clinics provided at the Lower West Side Health Center?

On VI-2, it is indicated that development and implementation of new technologies or modes for Postal goods movement could render the VMF obsolete in advance of the useful life of the housing atop it. We request a more detailed exploration of the possibility of this happening..Will we be stuck with a facility that could be turned to uses more polluting and damaging than the VMF?

Alternatives

We question seriously the statements on page 4: "Alternatives have been considered with the conclusion reached that the proposed action is the most feasible course for the Postal Service to pursue. Moreover, it is the most advantageous to the community in providing a needed potential source of housing."

The most advantageous and best course of action from the standpoint of the community, we feel, would be to devote the block exclusively to housing and related retail usages.

Further, statements by representatives of the Postal Service and consultant firms at public hearings indicate that the proposed consolidation of vehicle maintenance services will not include "heavy" maintenance, that being contracted out. The maintenance at the VMF will simply be of the "service station" variety. If this is the case, we must ask why properly planned "scatter site" decentralization would not be

more economical and efficient for the Postal Service than the proposed VMF. According to table B-5, on B-13, putting the trucks from the present Leroy Street Garage at the VMF will add 580 miles daily to Postal operations, since many of these trucks will continue to serve Postal stations in lower Manhattan. The added mileage per day to and from Church Street Station alone, for instance, will add 378 miles. It would seem that smaller facilities strategically located throughout the large area to be served might actually be more efficient.

Furthermore, we request that the Postal Service and the Army Corps of Engineers consider the alternate site put forth by several community groups for the VMF-- the area between 30th and 32nd Streets, 10th and 11th Avenues. It offers several obvious advantages for both the Postal Service and the community over the present proposal.

1. [illegible] than twice as large as the present Morgan Annex Site. The EIS on [illegible] indicates that single story operation would be "optimum" for the VMF. Since the site we propose includes two blocks and the width of a closed street, it would seem to be more nearly optimal for Postal Service purposes.

2. The main lines of the Penn Central run about 50 feet below grade on the northern portion of the site we propose. This fact would seem an important consideration in view of the energy crisis. It offers the possibility of access to rail transport of mail. Such rail access would seem to be desirable for intercity shipments and for transport to the area's airports. Within the decade, rail links will connect Penn Station to both Kennedy and Newark Airports. Since the Postal Service advertises that most first class mail now goes by air, use of such high-speed links would seem expeditious.

3. Both "build" proposals now being put forth by the West Side Highway Project include access ramps at 30th Street or thereabouts. It might well be feasible to plan a direct hookup for Postal trucks from the site we propose. Since it is apparent from the EIS that a considerable amount of the traffic generated by the VMF and/or Morgan Station will be going to lower Manhattan, this would be an attractive feature.

4. Access to the Lincoln Tunnel would also be more convenient.

5. Traffic on the streets bounding the site we propose is lighter than on those surrounding the present Morgan Annex Site.

6. Use of the over-the-street viaduct into Morgan Station would obviate use of city streets for maneuvering and loading.

7. The site west of 10th Avenue would put the VMF in the commercial zone of the community, a much more suitable location than the present Morgan Annex Site. The present proposal for the VMF violates the land use pattern of this community. Historically, this block was residential and the surrounding blocks were developed accordingly.

The citizens of Chelsea would be best served by again devoting the block to residential and related usage. The Morgan Annex block was and should be devoted to housing.

8. Allowing the block to revert to residential usage would eliminate the conspicuous energy consumption necessitated by the air conditioning of the housing units.

9. Use of the block for housing at ground level would also put people on the sidewalk and therefore make it safer to get to units at 10th Avenue, in particular.

Would the alternative site just two blocks from the present proposed site really reduce pollution and noise potential? To observe the difference just one block makes, we invite attention to the situation prevailing on two-way 23rd Street between 9th and 10th Avenues as compared with those conditions prevailing on less travelled 22nd and 24th Streets.

In short, we believe that locating the VMF on the alternate site would be of benefit to both the Postal Service and the Chelsea community.

Respectfully submitted,

COUNCIL OF CHELSEA
BLOCK ASSOCIATIONS

Hilda Regier

Hilda Regier
President

cc: Congresswoman Bella Abzug
Congressman Edward I. Koch
Congressman John Murphy
Senator James Buckley
Senator Jacob Javits
Mayor Abraham D. Beame
Borough President Percy Sutton
Assemblyman Richard Gottfried
Assemblyman William Passannante
State Senator Manfred Ohrenstein
Postmaster John R. Strachan
Paul Arbesman, Chief of Environmental Impacts Branch, Region II, Federal EPA
Herbert Elish, City Environmental Protection Administrator
Roger Starr, City Housing and Development Administrator
John E. Zuccotti, Chairman of City Planning Commission

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February 5, 1974

Ms. Beverly Getzen
United States Corps of Engineers
26 Federal Plaza, Room 2106
New York, New York 10007

Dear Ms. Getzen:

I would like to go on record as being opposed to the present plans for housing over the Vehicle Maintenance Facility in the block between 28th and 29th Streets, Ninth and Tenth Avenues. It is my opinion that there are many problems involved with such an arrangement. I strongly recommend that an alternate site be chosen for the Vehicle Maintenance Facility and that the block named be all housing for low and middle income families.

Sincerely,

R. Edward Lee, C.S.W.
Executive Director

REL:dbk

Veterans Administration Local 1151
AMERICAN FEDERATION OF GOVERNMENT EMPLOYEES
AFFILIATED WITH THE AFL-CIO
252 SEVENTH AVENUE, NEW YORK, NEW YORK 10001

February 5, 1974

HARRY H. ZUCKER
365 WEST 28th STREET
NEW YORK, N. Y. 10001

Ms. Beverly Getzen
Army Corps of Engineers
26 Federal Plaza
New York, N. Y. 10007

Dear Ms. Getzen:

I am informed that Thomas Daubner was to have given the Army Corps of Engineers abstracts of the hearings on the Motor Vehicle Maintenance Facility before Community Board # 4 but has not done so to date. I am assuming that the Corps of Engineers is entitled to receive a copy.

On the basis of my information and assumption, I am enclosing a copy of my remarks. The added material at the bottom reflects the oral ststement made in that regard at the hearing.

Sincerely,

Harry H Zucker

HARRY H. ZUCKER,
President.

January 8, 1974

I appear as a member of Community Board # 4 and as Chairman, Committee on Legislation and Community Affairs of the Workmen's Circle, Penn South Branch 1076 with a membership of 586 members.

I am constrained to protest the absence of a stenographic reporter at these hearings. On serious reflection and after attending three of the hearings, I am led to the conclusion that there can be no discernible record at these hearings which properly reflects the grave concerns of this community with respect to the serious and precipitous changes which will obtain from the construction of the Manhattan Vehicle Maintenance Facility of the United States Postal Service on the Morgan Annex Site. We are therefore compelled to submit this abstract in lieu of a full statement and we do this after having registered our protest and in recognition of the inadequacy of opportunity to ~~present~~ MAKE a full and unfettered representation.

We regret to report that we find the Environmental Statement to be inadequate for the purposes for which it is being employed. Firstly, we note that the report dealing with air quality was not based on original findings by those charged with the responsibility nor under the control of those so charged. Indeed, at Paragraph C.1, Page II-7, we note the statements, " * * * existing air quality data are relatively scarce for these contaminants * * * " and "Present air quality in the vicinity of the project site has been estimated from available data from the New York City Department of Air Resources (NYCDAR), including the 1972 Air Quality Implementation Plan Control strategy for carbon monoxide (CO), hydrocarbons (HC), and nitrogen oxides (NO_x)."

The Environmental Statement, which is dated 15 November 1973, does not show or reflect the date or dates of actual testing.

The Environmental Report fails to reflect serious atmospheric changes resulting from the energy deficit and crisis which the Federal Energy Administrator informs us will be with us until the mid 1980s. The report fails to reflect the impact that the loosening of restraints on "dirty fuels" such as high sulphur content oil or return to the use of coal will have on this community with the opening of a vehicle maintenance facility.

Thus, the Environmental Report becomes obsolete and meaningless with respect to the current state of our atmosphere and as to projections INTO THE 1980s.

We note, with regret, that the Environmental Statement obscures its findings in terms other than the criteria provided under Title 40, ~~Chapter~~ PART 50, Code of Federal Regulations.

We again note, with regret, that serious consideration was not accorded to alternate sites.

We note the admission that " * * * federal standards outlined in Table II-2 are occasionally exceeded for all three pollutants in midtown Manhattan." Assuming the validity of this conclusion for the area of the Morgan Annex site, the pollutant quality of the air would be considerably more increased with the use of the Vehicle Maintenance facility.

We note that the estimate for Carbon monoxide on the upper floors of the tower will amount to 47 ppm (C-24). We also note that 40 CFR 50.8 shows this pollution to be considerable above the safety margin.

We have received assurances by the Corps of Engineers that the pollution values in the area will be within the safety margin. Yet, we note that the proposed housing will be completely double sealed, at the windows, and have round the clock air conditioning. The existing schism between the assurance and the action places a maximum test on credence.

Upon inquiry, we were informed at a previous hearing, that there would be waiting lines of vehicles along Ninth Avenue, awaiting admission to the facility. Because of the very nature of the facility, there would be a large number of vehicles in varying degrees of disrepair. When added to the area pollution in existence, there is valid reason for grave concern.

In all the discussion, no serious attention has been addressed to the problem of inversions, particularly under the stress of the added pollution stemming from the Vehicle Maintenance Facility. This problem cannot be eased off by a mere assertion that traffic would be modified in accordance with the specifics in the premises. Assurances are non-enforceable. The answer must be absolutely fool proof. Many of the residents in adjacent housing are senior citizens who are easy prey to pulmonary and other similar diseases.

With respect to noise pollution, Figure II-7 shows the present findings on Ninth Avenue as 65 dbs. The median, as shown on Figure II-8 is 65 dbs at Penn South Houses with a high of 80 dbs. At Public School 33, is 58 dbs with a high of 85 dbs. No other findings are shown. With the event of the heavy traffic contemplated by the proposed facility, we would be very moderate indeed to characterize the projection as horrendous. Living in the vicinity of the proposed facility would become neigh impossible.

The traffic ~~pattern~~ patterns resulting from the proposed facility would not only distribute noxious contaminants but would also bring about extremely dangerous hazards to our children, our senior citizens and other Chelsea residents. The vibrations on the other streets resulting from the increased diverted traffic would endanger our gas and water pipes, among other things. The pattern would ~~spred~~ SPREAD noise pollution in an otherwise

quiet residential district destroying the district without really promoting the welfare of the Federal Government and its people as would obtain were the facility to be constructed in the alternate site previously recommended by others at 11th Avenue and 32nd Street or the shop site

We urge the United States Postal Service to recognize the strength and degree of opposition to this facility among the informed RESIDENTS of Chelsea. We respectfully again urge that the alternate site be given serious consideration and that the United States Postal Service open its collective mind and heart to the needs of the people of Chelsea.

We stand strongly behind the move to create integrated housing to include the people of the lower, moderate and middle income levels so as to promote the well being of our people rather than to saddle them with a dangerous, poisonous and deplorable situation.

Respectfully submitted,

HARRY H. ZUCKER,
Chairman,
Legislation and Community Affairs,
Workmen's Circle, Branch 1076

~~The Environmental Statement treats each type of pollutant on a separate basis. When the combined air pollution enters the human body, it must be treated as a single entity~~

The Environmental Statement treats each type of pollutant as an entity on a separate basis as if it ~~we-s~~ were isolated and the only pollutant present and entering the human body. This type of approach fails to recognize the full impact of all of the pollutants on the organs and on the total person, Such failure invalidates the rationale upon which the conclusions of the Environmental Study were based. The conclusion cannot be avoided that, when a number of pollutants enter the body, each pollutant has a deleterious affect and we must consider the sum total of ~~what happens~~ of injur y and damage and not the isolated affect of each pollutant.

West Twentieth Street Block Association

400 BLOCK WEST 20th STREET, CHELSEA HISTORIC DISTRICT, NEW YORK CITY, 10011

February 8, 1974

Department of the Army
New York District, Corps of Engineers
26 Federal Plaza
New York, New York

Attn: Ms. Beverly Getzen
Mr. F. R. Pagano

The West Twentieth Street Bock Association, 400 Block, opposes the present plan to construct a United States Postal Service Vehicle Maintenance Facility on the 400 Block between Ninth and Tenth Avenues at 28th and 29th Streets.

The conception presented to the Chelsea community is unacceptable environmentally, as to air, noise, traffic and aesthetically. It represents poor city planning and is inappropriate usage of a block in a residential area.

The West Twentieth Street Block Association, 400 Block, endorses the alternate site proposal to construct the Postal Facility within the Pen Central 30th Street yards and to preserve the 400 Block between 28th and 29th Streets exclusively for housing.

Yours truly,

Rowena Diggs Doyel

Mrs. Rowena Diggs Doyel
Assistant to Chairman

(300) WEST 21-2-3 STREET BLOCK ASSOCIATION
360 ~~324~~ WEST 22ND STREET
NEW YORK, NEW YORK 10011

Statement Delivered to Planning Board ,4 at Public
Hearing re Morgan Annex---January 1974

The 300 West Block Association 21,22,23 Streets views with alarm the proposed construction of over 800 units of housing atop a VMF for 1,000 trucks on the Morgan Annex site.

We are concerned about the noise and air pollution which will added to our local streets already overburdened by traffic, day and night.

We are concerned about the emissions from the VMF which will be absorbed by the residents of the apartment complex below as well as be all neighboring buildings.

We are concerned for both the health and wellbeing of all those who use Chelsea Park, the only recreational facility in the area.

We are concerned that the proposed housing will require air conditioning in each apartment; thus adding to the energy crisis.

This Block Association supports the construction of low and middle income housing on the Morgan Annex site but we are opposed to its being built on top of a VMF for the Postal Service.

We feel that the community is being "railroaded" into accepting a "package deal" which is environmentally unsound from both an energy and health point of view, in order to get badly needed housing.

We endorse the proposal to explore the possibility of constructing the VMF on the site of the Penn Central yards between 30th and 32 Streets.

Iris Katz
chairwoman

The Environmental Committee of Planning Board #4 met Wednesday January 23, 1974 ~~with Chairman Jacqueline Schwartzman leading the discussion.~~

The weaknesses and fallacies of the Revised Draft Environmental Statement for the U.S. Postal Service's Manhattan Vehicle Maintenance Facility were discussed in detail:

<u>Project Description</u>

<u>Section I (A.1)</u>
" The VMF portion of the project will contain approximately 800,000 square feet of interior space. The structure is of split-level design to conform with the natural slope of the site, with two levels below grade, three and four levels above grade on the Ninth and Tenth Avenue ends, respectively. Parking is to be provided for 771 trucks, 93 tractors, 24 trailers, and 30 official-use autos. Maintenance facilities will include service and repair bays, wash racks, and paint and body shop. Dispatching and Fueling operations, offices, and facilities for 300 based employees and 1,200 drivers are provided as well. VMF vehicular ingress and egress will be provided only on the 29th Street side facing Morgan Station to minimize Postal vehicle impact on the community and interference with flow on adjacent North-South Ninth and Tenth Avenue traffic arteries. The proposed closure of 29th Street to non-Postal traffic accompanies this objective of concentrating VMF vehicular access. In addition, Morgan Station truck loading docks face 29th Street and will require use of the street for maneuvering. Public use of the street combined with VMF and Morgan Station movements would subject both Postal and Non-Postal traffic to difficult conditions and would impair the operational efficiency and security desired by the Postal Service."

The question of centralization versus de-centralization of services was brought up. This problem has been intensified by the recent job actions by Postal employees in the large Postal installation in New Jersey and emphasizes the ease with which activities can be disrupted when there is a concentration of services in one place.

There is no guarantee in the study in regard to housing.

<u>Page C-I (C,1-Paragraph 1)</u>
" The multitude of sources and the complexity of the air pollution problem in Midtown Manhattan is such that it is very difficult to determine existing levels or project future levels of air quality. In particular, it is difficult to determine the influence of one single project on air quality."

<u>Page B-12 (B.4. (c))</u>
" Most of the present movements (of traffic) are anticipated to divert to streets north of the study area."

The statement that most of the traffic will be diverted North is questioned. Also, if this should happen there is no consideration given to the impact on the Convention Center area or to the 2000 car garage currently being built on West 42nd Street. Expansion of Southern Manhattan is completely overlooked.

The ambient air quality figures used in this study are on 110th Street in Manhattan--not on the air of Chelsea.

<u>Page B-8 (B.4 (a))</u>
" Vehicle Maintenance Facility and Preferential Mail Center (Traffic) demand estimates were based on vehicle operation schedules and characteristics provided by the U.S. Postal Service."

" Approximately 2,200 Postal vehicle movements into and out of (total) the VMF are anticipated on an average weekday."

The traffic study considers traffic generated by the VMF, PMC, Apartment complex and traffic diversions as a result of 29th Street restrictions on non-Postal vehicles. It is based on after-hours and early morning hours deliveries and has not been tested for public acceptability. It is inconsistent to predict what external changes will occur.

<u>Page B-7 (Paragraph 2)</u>
" The proposed Convention and Exhibition Center west of Twelfth Avenue between 43rd and 47th Streets is currently scheduled to be under construction by Spring 1974, with completion in 1976. Anticipated traffic is expected to primarily use Twelfth Avenue and Crosstown routes between 42nd and 57th Streets. The project should have no measurable impact on traffic in the VMF study area."

This statement that the project of the Convention Center should have no measurable impact on traffic in the VMF area is questioned. Consultants for the various projects do not consult each other and their statements are not coordinated. Environmental Impact statements for the VMF, the Morgan Station PMC, the Convention Center, the West Side Highway and the 2000 car garage on 42nd Street between Ninth and Tenth Avenues should be coordinated and compared for fallacies.

<u>Page B-7 (Paragraph 4)</u>
" The Garment Center Urban Goods Movement Study is a technical study project aimed at finding practical ways to improve the movement of goods and people in the Garment District. The project is currently in initial phases of data collection and analysis."

The study brushes aside secondary mobile activity and areas of conflict with industries important to the economy of New York City. The statement of no anticipated conflict is impossible to predict at this time. The study refutes itself later in this section by assuming traffic will remain at its present level.

Page B-6 (Paragraph 2)
" Strategies of the New York City Air Quality Implementation Plan, those calling for the improvement of Public Transportation alternatives and institution of traffic and parking control programs should serve to reduce traffic volumes in the study area. Such strategies are in addition to controls directly affecting emission rates. Overall, the transportation improvement and traffic control programs are expected to reduce motor vehicle emissions in the approximate range of 5 to 25 percent. However, no specific programs which would reduce study area street traffic volumes have been identified to date."

Other studies predict 112 percent increase in traffic.

Page B-6 (Part 1)
Current West Side Highway Project studies involve alternate plans.
" Project Traffic Studies (West Side Highway) to assess the impacts of the varous alternatives on existing street traffic have not been completed to date."

Some of the preliminary design concepts include additional connector ramps to existing Lincoln Tunnel ramps at 31st Street between Ninth and Tenth Avenues.

Page VII-1 (Paragraph 1)
" Construction of the proposed VMF-Apartment Complex will, in essence, recommit the land to a mixed use such as existed prior to site clearance. Mixed use, however, is compatible with land use policy as presented in the Plan for New York City."

The Committee feels that the plan for the VMF topped with the projected housing has no relationship with the prior mixed use on this site.

The Committee discussed the current plans to roll back many Environmental programs due to the energy crisis and rapidly changing conditions.

This Environmental Impact Study has been based on inadequate data and makes far too many assumptions.

The only Environmental study figures presented are on the impact on residents of the projected housing above the VMF and the effect on the residents of the immediate area has not been sufficiently considered. There is not a statement on the pollution of the general area.

The statement as to the impact of energy usage for the project is in conflict with Con Edison's practice.

No consideration has been given to the high density usage of this City block, to the lack of firm Mass Transit planning for the area in the future, or to the unattractive architectural features.

Respectfully submitted,
[illegible]
Chairman

Attachment B

ALTERNATIVE SITE ANALYSIS -

30TH-32ND STREET YARDS

CONTENTS

TABLES

FIGURES

A. DESCRIPTION OF THE ALTERNATIVE ACTION

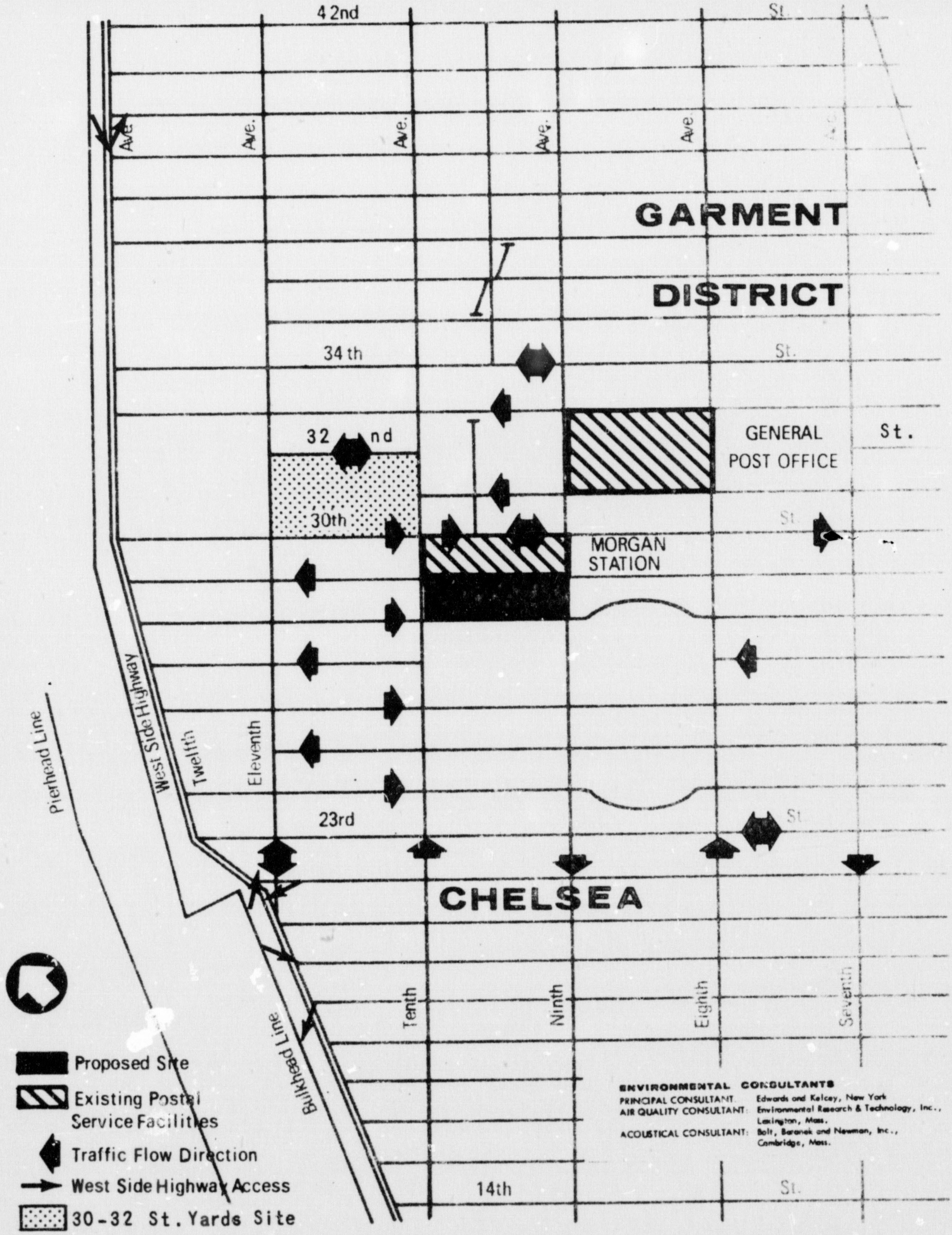
An alternative site for the VMF is advocated by various groups within the Chelsea community. This alternative, first advanced at a series of recent meetings of Community Planning Board No. 4, would relocate the VMF to the city block bounded by 30th and 32nd Streets and by Tenth and Eleventh Avenues. The site, called the 30th-32nd Street Yards, is diagonally opposite the northwest corner of Morgan Station, as shown on Figure 1. Under this VMF relocation proposal, the low- and moderate-income housing project would remain at the 29th Street site.

The southern and central portions of the 30th-32nd Street Yards site are presently occupied by two one-story industrial buildings housing rail-truck terminal and warehousing operations, and related loading areas. A rail viaduct along the north side of 30th Street once provided rail access to Morgan Station, but service has been eliminated. A branch to the south, running parallel to and just west of Tenth Avenue, serves other West Side industry.

Under "build" options currently under consideration by the West Side Highway Project, a viaduct connector between a new West Side Highway and the existing Lincoln Tunnel access ramps would be constructed across the site, directly to the north of, and parallel to, the rail viaduct.

The northern portion of the site is occupied by a truck parking area recently leased by the Postal Service for parking of postal vehicles. Site elevations on the northern portion range from approximately 10 to 25 feet below adjacent 32nd Street and Eleventh Avenue, the latter constructed on a viaduct along the western border of the site. This northern portion would likely be the most suitable part of the site for a VMF development. Thirty-Second Street, a single-block, two-way, virtually unused street would offer access and maneuvering area directly to both Tenth and Eleventh Avenues, much as the adjacent avenue accessibility with exclusive use of 29th Street at the proposed site. A multi-story VMF of dimensions comparable to the proposed VMF would be likely to be required to fit within the block site after deduction of rail and proposed West Side Highway encroachments and to conform to the site elevation differences.

The blocks surrounding the alternative site are predominantly in commercial and transportation use, as shown in Figure II-11 in the Revised Draft Statement. Primary activities include rail and truck goods distribution and warehousing. The east side of Tenth Avenue between 31st and 33rd Streets is occupied by a relatively recently constructed Garment Trade Building, a 250-foot-high office-industrial building. One residential structure remains at the northeast corner



ALTERNATIVE VMF PROJECT LOCATION

Figure 1

of Tenth Avenue and 30th Street. This is a four-five story "old-law" tenement which, according to the 1970 Census, contains 18 dwelling units housing 44 persons.* Both the site (M1-5) and surrounding blocks (M1-5, M1-6, and M2-3) are zoned for commercial and manufacturing development, including activities such as the VMF.

B. STREET TRAFFIC AND CIRCULATION

B.1 POSTAL VEHICLE TRAVEL

Changes in daily postal vehicle travel for VMF garaged vehicles were studied in the same manner by which the proposed 29th Street site was assessed. The number of daily movements and travel distances between present garage and site locations and 30th-32nd Street Yards and the first (or last) postal station stops were compared. Daily vehicle mileage of the various postal vehicle types are summarized in Table 1, and compared mileage for both present and proposed 29th Street site locations.

Postal vehicle movements were assigned to the street system assuming:

(1) Two-directional postal vehicle operation on 32nd Street from entrances located similar to the proposed plan for the 29th Street site, allowing direct movements to Tenth Avenue northbound and Eleventh Avenue south- or northbound (entrances directly on the Avenues would provide similar circulation);

(2) Northbound VMF traffic using Tenth Avenue, southbound VMF traffic using Eleventh Avenue;

(3) VMF to PMC traffic using Eleventh Avenue and 30th Street, with PMC to VMF return via Tenth Avenue; and

(4) Other PMC traffic using Ninth Avenue southbound and Tenth Avenue northbound.

The assumed circulation routes, as those for the proposed 29th Street site, represent a "proposed" pattern only and would be adjusted as conditions warrant (see Section VIII.C.3.(a)). Use of Tenth Avenue for northbound movements offers generally more favorable operating conditions and slightly less overall travel than alternative use of Eleventh Avenue. As shown by the proposed site analysis, present air quality and noise levels are not significantly altered by shifting of the Avenue routing patterns.

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* See Appendix A, Tables A-3 and A-5.

Table 1

VMF TRUCK MOVEMENTS - SUMMARY

	Present Vehicle Mileage	Vehicle Mileage with VMF		Vehicle Mileage Change[2]	
		30-32 Yards	29th Street	30-32 Yards	29th Street
1/4 to 1 Ton Units					
▪ Leroy St.[1]	287	760	693	+473	+406
▪ Piers/34th St.[1]	568	521	488	- 47	- 80
Subtotal	855	1,281	1,181	+426	+326
2 Ton Units					
▪ Leroy St.[1]	123	325	297	+202	+174
▪ Piers/34th St.[1]	722	644	622	- 58	-100
Subtotal	845	989	919	+144	+ 74
5 Ton Units - 34th St.[1]	710	570	470	-140	-240
Diesel Tractors - 34th St.[1]	1,010	1,080	950	+ 70	- 60
Totals	3,420	3,920	3,520	+500	+100

[1] Present Garage Location

[2] From Present Mileage

B.2 PEAK-HOUR TRAFFIC

Traffic movements generated by the VMF, PMC and housing projects (housing only at 29th Street site) during peak A.M. and P.M. street traffic periods were added to present volumes using the same procedures as described for the 29th Street site (see Appendix B). Resultant peak "post development" traffic volumes and composition are shown in Table 2 for Tenth and Eleventh Avenues adjacent to the alternative VMF site and in Table 3 for the streets in the proposed site study area. In the latter table, post-development volumes under both the proposed and alternative site locations are shown for comparative purposes. The greatest differences occur during the A.M. peak on the westbound streets and Tenth Avenue north of 29th Street, since public traffic divisions from 29th Street would not be required with the alternative site. On 31st, 33rd and 34th Streets, volumes under the alternative site arrangement would be essentially unchanged from existing volumes, minor reductions occurring as a result of the transfer of preferential mail operations from GPO to Morgan Station.

B.3 EARLY MORNING, LATE EVENING TRAFFIC

Postal vehicle movements during the normal sleep periods most critical for the assessment of noise impacts are identified in Table 4 for each of the proposed study street segments and for Tenth and Eleventh Avenues in the vicinity of the alternative site. The 5 A.M. to 7 A.M. period corresponds to the period of greatest total postal activity, the latter, due partly to the proposed rescheduling of movements away from the evening rush hour, to the period of peak heavy-duty truck traffic.

B.4 COMPARISON TO PROPOSED SITE OPERATIONS

The alternative site would be somewhat less efficient for postal vehicle travel, as described in Section B.1, including increased street circulation between the VMF and Morgan Station PMC. The alternative site, however, would eliminate the need to divert non-postal traffic from West 29th Street which, without remedial parking enforcement and other traffic control measures, would adversely affect other westbound routes. Overall, impacts on existing street operations under either alternative would not likely be significant.

Advocates of the alternative site point to (1) potential Penn Central rail connections, (2) direct ramp connections to a West Side Highway-Lincoln Tunnel connector if the latter is built, and (3) use of the existing over-the-street rail viaduct to Morgan for truck maneuvering as advantages of the 30-32 Street Yards location.

Table 2

WEEKDAY PEAK HOUR TRAFFIC

Vicinity of 30-32 Street Yards Site

	A.M. Peak Hour			P.M. Peak Hour		
	Total Vehicles	% Trucks & Buses Gas	% Trucks & Buses Diesel	Total Vehicles	% Trucks & Buses Gas	% Trucks & Buses Diesel
Tenth Avenue						
North of 32nd St.:						
existing	1,000	40	6	1,500	25	5
with VMF at 30-32 Yds.	1,015	40	6	1,510	25	5
South of 32nd St.:						
existing	1,000	40	6	1,500	25	5
with VMF at 30-32 Yds.	1,030	40	6	1,525	25	5
Eleventh Avenue						
North of 32nd St.:						
existing	750	25	5	750	30	5
with VMF at 30-32 Yds.	755	25	6	810	30	5
South of 32nd St.:						
existing	750	5	5	750	30	5
with VMF at 30-32 Yds.	770	25	6	775	30	5

Table 3

AVERAGE WEEKDAY PEAK HOUR TRAFFIC - ALTERNATIVE AND PROPOSED SITES
Proposed Site Study Area

Street Segment(1)	Dir.	A.M. Peak Hour: Total Vehicles, 30-32 Sts. Site	A.M. Peak Hour: Total Vehicles, 29th St. Site	A.M. % Trucks and Buses: Gas, 30-32 Sts. Site	A.M. % Trucks and Buses: Gas, 29th St. Site	A.M. % Trucks and Buses: Diesel, 30-32 Sts. Site	A.M. % Trucks and Buses: Diesel, 29th St. Site	P.M. Peak Hour: Total Vehicles, 30-32 Sts. Site	P.M. Peak Hour: Total Vehicles, 29th St. Site	P.M. % Trucks and Buses: Gas, 30-32 Sts. Site	P.M. % Trucks and Buses: Gas, 29th St. Site	P.M. % Trucks and Buses: Diesel, 30-32 Sts. Site	P.M. % Trucks and Buses: Diesel, 29th St. Site
A	NB	1,200	1,200	15	15	2	2	1,700	1,725	10	10	2	2
B	SB	1,740	1,815	25	25	3	3	1,420	1,415	25	25	3	3
C	SB	1,810	1,885	25	25	3	3	1,505	1,500	20	20	3	3
D	SB	1,615	1,565	25	25	3	3	1,410	1,450	20	20	3	3
E	NB	925	925	40	40	6	6	1,465	1,440	20	20	5	5
F	NB	915	915	40	40	6	6	1,375	1,350	20	20	5	5
G	NB	1,135	865	35	35	5	6	1,830	1,685	20	20	4	4
H	NB) SB)	905	850	30	30	5	5	925	920	20	20	4	4
I	EB	315	300	40	35	3	3	300	310	20	20	5	6
J	EB	420	350	40	35	3	3	805	770	15	15	3	3
K	EB) WB)	1,[illegible]	1,050	35	35	3	3	705	700	15	15	3	3
L	EB	700	700	35	35	3	3	500	500	15	15	3	3
M	NB	150	50	45	90	1	2	200	190	40	45	2	4
N	WB	370	(2)	25	(2)	1	(2)	655	570	25	25	2	3
O	WB	350	350	20	15	2	1	750	625	25	25	2	2
P	EB	550	250	35	35	2	2	170	170	20	20	5	5
Q	EB	260/310	260/310(3)	30/25	30/25(3)	1	1	260/230	260/230(3)	10/15	10/15(3)	3	3
R	EB	380	380	20	20	1	1	315	315	15	15	1	1
S	EB	50	50	35	35	2	2	100	100	30	30	2	2
T	EB	300	300	20	20	1	1	250	250	15	15	1	1
U	WB	200	250	15	15	-	-	410	430	15	15	1	1

\- Negligible

(1) See Figure B-1.

(2) Postal vehicles only - volume varies within segment.

(3) Volumes shown are from Tenth Street to apartment parking entrance ramp and from exit ramp to Ninth Street, respectively.

Table 4

EARLY MORNING, LATE EVENING VMF-PMC VOLUMES BY STREET SEGMENT WITH 30-32 YARDS VMF

¼ to 2 Ton, 5 Ton and Diesel Units

Street Segment[1]	5-6 A.M. ¼-2 Ton	5-6 A.M. 5 Ton	5-6 A.M. Diesel	6-7 A.M. ¼-2 Ton	6-7 A.M. 5 Ton	6-7 A.M. Diesel	10-11 P.M. ¼-2 Ton	10-11 P.M. 5 Ton	10-11 P.M. Diesel	11 P.M.-Midnight ¼-2 Ton	11 P.M.-Midnight 5 Ton	11 P.M.-Midnight Diesel
A	-	-	-	-	-	-	-	-	-	-	-	-
B	1	13	-	1	9	1	1	17	1	1	20	2
C	1	13	-	1	9	1	1	17	1	1	20	2
D	2	26	-	2	16	2	2	40	1	2	39	2
E	1	14	5	1	11	4	11	20	10	6	23	14
F	1	14	5	1	11	4	11	20	10	6	23	14
G	2	42	5	2	28	4	12	60	10	7	58	14
H	77	2	4	86	2	4	-	2	10	-	2	12
I	-	16	-	-	11	-	-	17	-	-	16	-
J	1	28	-	1	20	-	1	35	-	1	37	2
K	1	13	-	1	9	1	1	17	1	1	20	2
L	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	-	-	-	-	-	-	-	-
N	1	28	-	1	17	1	1	40	-	1	35	-
O	-	-	-	-	-	-	-	-	-	-	-	-
P	-	-	-	-	-	-	-	-	-	-	-	-
Q	-	-	-	-	-	-	-	-	-	-	-	-
R	-	-	-	-	-	-	-	-	-	-	-	-
S	-	-	-	-	-	-	-	-	-	-	-	-
T	-	-	-	-	-	-	-	-	-	-	-	-
U	-	-	-	-	-	-	-	-	-	-	-	-
Tenth Avenue												
30-32 Sts.	1	30	5	1	19	4	11	42	10	6	37	12
North of 32 St.	81	14	4	92	8	4	1	25	10	1	21	12
Eleventh Avenue												
30-32 Sts.	77	18	4	86	13	4	-	19	10	-	18	12
North of 32 St.	-	2	5	-	2	4	10	2	11	6	2	13

[1] See Figure B-1 for Segments A to U (Appendix B)

If and when rail and/or subway mail transport become practicable, suitable connections between the point of mail processing, Morgan Station, and such rail facilities already exist. As indicated in Section V.D.3, the Postal Service is participating in the planning of, and anticipated use of, rail access to area airports. Direct ramps to an elevated connector proposed to pass through the southern portion of the 30-32 Street Yards site if a West Side Highway "build" option is implemented would be "possible". However, since only a portion of the VMF movements would be affected and access to a "connector", if built, would be nearby in any case, no substantial benefits from such ramps occur. Use of the existing rail viaduct for vehicle maneuvering would be impracticable since the Morgan loading docks are all at street level, the second level accommodating mechanical processing equipment.

C. AIR QUALITY

C.1 CHANGES IN AIR QUALITY DUE TO TRAFFIC EMISSIONS

One impact on air quality if the VMF were to be constructed on the alternative site is a increase in the daily emissions of postal vehicles operating from the VMF as compared to both present and proposed 29th Street site movements. Table 5 depicts the carbon monoxide emissions in grams per day for VMF postal vehicle movements with present, proposed 29th Street, and alternative 30-32 Street yards garage locations. As the table indicates, postal vehicle CO emissions would be approximately 12 percent greater for the alternative site than for the proposed site. As compared to CO emissions with present garage locations ("Without VMF"), the alternative and proposed site emissions would be approximately three percent greater and eight percent less, respectively.

The relative changes in emissions on Tenth and Eleventh Streets adjacent to the alternative site were assessed by calculating 1980 vehicular emission estimates with and without the proposed VMF project. Table 6 presents carbon monoxide emissions, in grams per hour, for the morning and evening peak traffic hours. There would be a slight increase in emissions for both the A.M. and P.M. peaks to the addition of postal traffic.

In the 15-block study area evaluated for the proposed site, minor differences in air quality from the proposed and "without VMF" actions would occur. Overall, however, emissions and air quality levels would be similar under any of the three cases. No increase in congestion is expected as a result of the changes in traffic.

Table 5

1980 DAILY POSTAL VEHICULAR CARBON MONOXIDE EMISSIONS
(grams/day)

Vehicle Type	With VMF 30-32 Yards	With VMF 29th Street	Without VMF
1/4 to 1 ton	19,856	18,306	13,253
2 ton	174,657	162,295	149,227
5 ton	100,662	83,002	125,386
Diesel	38,232	33,630	35,754
TOTAL	333,407	297,235	323,620

Table 6

CO EMISSIONS ON AVENUES
ADJACENT TO THE ALTERNATIVE SITE
(gram/hour)

Street Segment	1972	1980 Without VMF	1980 With VMF(1)	1972	1980 Without VMF	1980 With VMF(1)
Tenth Avenue						
30th to 32nd Street	18,411	7,708	8,109	23,213	8,089	8,363
32nd to 34th Street	18,411	7,708	7,874	23,213	8,089	8,236
Eleventh Avenue						
30th to 32nd Street	11,613	4,054	4,336	12,984	4,619	4,710
32nd to 34th Street	11,613	4,054	4,101	12,984	4,619	4,818
TOTAL	60,048	23,524	24,420	72,[illegible]94	25,416	26,127
% Reduction (2)	--	61	59	--	65	64

(1) At 30-32 Yards Site

(2) From 1972 Emissions

C.2 IMPACT OF THE VMF EXHAUST VENT EMISSIONS

The alternative site VMF would likely be ventilated with exhaust stacks on top of the building, approximately 30-40 feet above street level. As the point of exhaust discharge is considerably lower than if located on top of the air rights housing, the impact on ground-level CO concentrations will be greater. Again, pollutant emissions in the VMF exhaust would arise from three principal sources:

(1) Vehicle movements in the garage during the 5-8 A.M. peak;

(2) Vehicles maneuvering within the building any hour of the day; and

(3) Vehicles being serviced within the facility.

Since design features of an alternative VMF are only speculative, it is impossible to absolutely assess the impact on air quality resulting from the VMF ventilation discharge. A maximum CO concentration of 100 ppm in a stack should occur, if at all, only during the 5-8 A.M. time period. Typical concentrations in an exhaust stack would likely be less than 25 ppm.

Since the stacks would be short compared to the heights of nearby buildings and the VMF itself, the exhaust plume would be subject to aerodynamic downwash most of the time. With calm or very light winds (no downwash), the plume would experience mechanical turbulence due to the presence of buildings. The closest receptor is the Garment Trade Building on Tenth Avenue. During the 5-8 A.M. period the highest CO levels at the west facade of this building with downwash conditions and westerly winds would be about 16 ppm, excluding background. Without wash, the CO level would be about 15 ppm. The background level at the end of this period could be as high as 7.7 ppm.

The traffic volume on Tenth Avenue during the A.M. peak hour is about 1,000 vehicles per hour. Even with poor meteorological conditions, the highest CO concentration from this traffic above would be about 3 ppm. Hence, the total CO level would be about 27 ppm on Tenth Avenue. If the traffic flow breaks down due to an accident or other mishap, the pollution contribution of Tenth Avenue traffic could rise markedly and result in a contravention of the one hour CO standard. The joint probability of 100 ppm in the exhaust stack, light westerly winds, and stalled traffic is, of course, quite small.

With CO levels in the exhaust stack of about 25 ppm and persistent light westerly winds, it is likely that eight-hour CO concentrations

on Tenth Avenue would exceed the 9 ppm standard. The frequency of this event is about six times per year assuming the persistence of adverse meteorology for eight hours.

The impact of the VMF exhaust alone on other receptors near the alternative site would be small--less than 4 ppm during the 5-8 A.M. period and less than 1 ppm during other time periods. Table 7 summarizes the impact on nearby receptors.

In summary, the impact of the alternate site VMF exhaust in itself would be at most 16 ppm. This could occur directly opposite the alternative site on Tenth Avenue. The impact on other receptors would be less than 4 ppm. The contribution of all sources in the area of VMF would not result in a violation of the one hour standard unless the traffic flow stalls on Tenth Avenue when all other conditions are detrimental. It is possible that the eight-hour standard will be exceeded about six times per year on Tenth Avenue. Since the greatest potential impact of the facility exhaust would occur east of Tenth Avenue, any exhaust(s) would have to be located as close to Eleventh Aveanue as feasible. Any impact on air quality would then be limited to Eleventh Avenue where the impact would be felt the least.

C.3 HOUSING ONLY ON 29th STREET SITE

The highest emissions and resulting pollutant concentrations on any of the streets would occur during stalled traffic conditions (some condition as assumed for analysis of the proposed development). Twenty-ninth Street, adjacent to Morgan Station, probably has the greatest potential for congested traffic. As a worst case estimate, stalled traffic carbon monoxide emissions, assuming three lanes of traffic, were calculated for 1980. The highest associated CO concentration with adverse meteorological conditions is about 28 ppm, including background. This concentration is below the one hour standard of 35 ppm.

Carbon monoxide concentrations average over eight hours must be compared to the 9 ppm standard. The highest weekday traffic volumes on the streets near the housing development occur on Ninth Avenue. An average eight-hourly traffic volume of 1,500 vehicles per hour will produce a ground-level CO concentration of 4 ppm. Adding a background level of 5.8 ppm results in an ambient CO concentration of 9.8 ppm, which exceeds the Federal standard. The CO level was calculated assuming a wind speed of one meter/second. Although the likelihood of the persistence of very light winds for eight hours is relatively small, the potential for a contravention of the eight hour standard does exist for about nine times per year.

TABLE 7

RESULTS OF WORST CASE ANALYSES OF CO CONCENTRATIONS DUE TO THE VMF VENT EXHAUST (ESTIMATES BASED ON ASSUMPTION OF 100 ppm IN THE VENT EXHAUST)

RECEPTOR	CO CONCENTRATION (ppm)*
Garment Trade Building	16**
Morgan Station	4
St. Michael School (33rd Street)	3
Other Sites	< 3

*Excluding background.

**Contribution of all other sources would give 27 ppm as peak hourly CO concentration.

As with the proposed VMF-housing development, results of the "Indoor-Outdoor Carbon Monoxide Study"* are applicable to the development of housing only on the site. Traffic on the surrounding streets would be the source of pollutants that would enter the housing units. Table 8 depicts the highest expected one hour CO concentrations for 1980 with height outside a housing tower and the associated indoor levels. Both outdoor and indoor concentrations will be below 35 ppm, the one hour standard.

Table 9 presents the highest expected eight hour CO levels expected inside and outside a Ninth Avenue housing tower assuming the same traffic conditions and meteorology as previously discussed. As the Table indicates, the eight hour standard of 9 ppm will be exceeded in the lower floors of the tower. About sixty percent of the CO levels is attributable to the high city background.

In summary, the lower floors of a housing development at grade could be expected to be exposed to carbon monoxide concentrations exceeding the eight hour standard during very light wind conditions and peak traffic conditions on Ninth Avenue. The one-hour standard would not be expected to be exceeded.

D. ENVIRONMENTAL NOISE

D.1 IMPACT ON AMBIENT NOISE LEVELS

D.1.(a) Ambient at 30th-32nd Street Yards

Ambient noise levels at the alternative site are similar to those at the proposed 29th Street site as indicated by the following measurements along Tenth Avenue adjacent to both sites:

Sound Level (dBA)	Proposed 29th Street Site*	30th-32nd Street Yards**
L_{10}	79	81
L_{50}	71-73	72

*from Appendix D of Revised Draft Statement, Table D-1, survey 10/31/72.

**measurements from West Side Highway Project survey by Bolt, Beranek and Newman, 9/26/72.

Local traffic changes associated with VMF operations at this site will not appreciably increase ambient street noise levels overall. Any increases as may occur on individual street segments (including

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*General Electric Company, 1972: Indoor-Outdoor Carbon Monoxide Pollution Study, EPA-R4-73-020, Philadelphia, Pennsylvania.

TABLE 8

WORST CASE 1-HOUR CO CONCENTRATIONS
OUTSIDE AND INSIDE TOWER HOUSING UNIT

HEIGHT (FT.) ABOVE STREET LEVEL	CO CONCENTRATION (ppm)	
	OUTSIDE	INSIDE
0	28	28
30	20	20
50	18	19
150	17	18
230	10	12
290	11	17

TABLE 9

WORST 8-HOUR CO CONCENTRATION
OUTSIDE AND INSIDE NINTH AVENUE
TOWER HOUSING UNIT

HEIGHT (FT.) ABOVE STREET LEVEL	CO CONCENTRATION (ppm)	
	OUTSIDE	INSIDE
0	9.8	9.8
30	6.8	6.8
50	6.4	6.5
150	5.6	6.4
230	3.4	4.3
290	3.8	6.0

32nd Street) would be minor in nature and will be of little consequence in terms of the types of commercial and industrial land uses affected.

D.1.(b) <u>Effects of VMF Relocation on the Chelsea Community</u>

Relocation of the VMF will not "improve" street noise levels in the vicinity of the proposed 29th Street site. As noted in Section III.A.3.(a) of the Statement, increases in ambient street noise levels in the area due to postal vehicle traffic generally would not exceed 1-3 dBA. With Morgan Station PMC activity remaining, reductions of such increases would be minimal.

Noise impacts associated with the construction of the VMF at the 29th Street site would, of course, be avoided. Such impacts would be limited to only those associated with the housing portion of the project. The time period for and amount of excavation below grade, including blasting, will be appreciably shortened.

D.1.(c) <u>Late Evening Impacts of Morgan Station PMC Operations</u>

Analysis of noise levels generated by combined PMC and VMF heavy truck (5-ton and diesel) traffic from 10 P.M.-12 P.M., the period of peak heavy postal truck activity, revealed the following sound level increases along Ninth Avenue at the point of highest PMC-VMF truck concentration (at 29th Street):

	60 feet from Noise Source	200 feet from Noise Source
10:00 P.M.-11:00 P.M.		
Increase in L_1	5.5	5.5
Increase in L_{10}	6	6.5
11:00 P.M.-12:00 P.M.		
Increase in L_1	4	3
Increase in L_{10}	5.5	6.5

During this late evening period, some 70 percent of all 5-ton and diesel postal truck movements are related to the PMC. Much heavy postal truck traffic would remain on Ninth Avenue and 29th Street even with the VMF at the 30th-32nd Street Yards. Noise reductions from the above values resulting from removal of all non-PMC related 5-ton and diesel truck traffic from Ninth Avenue are approximately 1 dBA for L_1 and 1.5 dBA for L_{10}, or roughly a 25 percent reduction of the original increase.

D.2 IMPACT ON HOUSING AT GRADE ON PROPOSED SITE (29TH STREET)

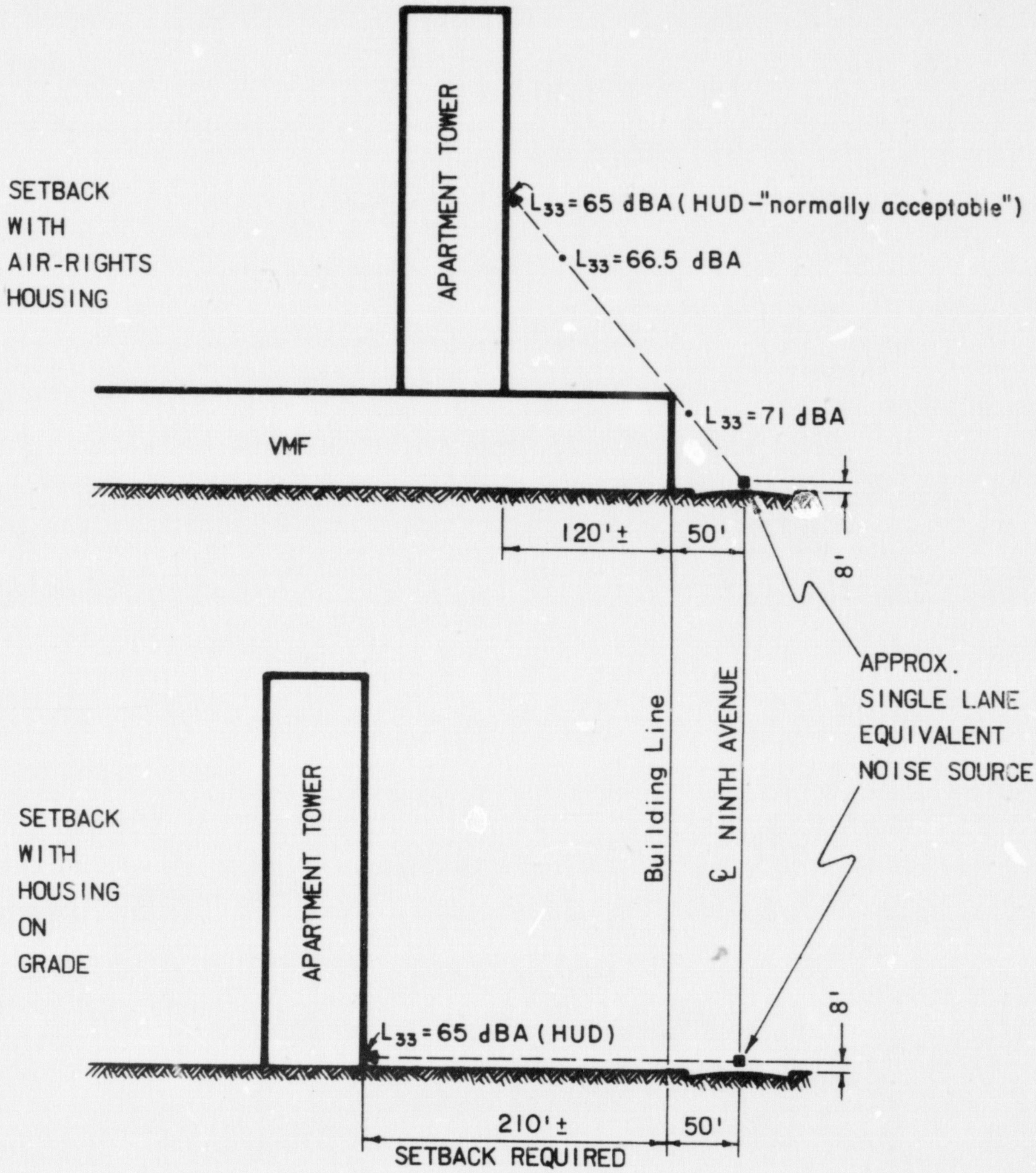
Standards of the U.S. Department of Housing and Urban Development (HUD) for federally subsidized housing (see Page III-27 of Statement for definition of standards) require that ambient noise levels not exceed 65 dBA more than eight of 24 hours (L_{33} - 33-1/3 percentile).

Based on extrapolation of data from noise measurements taken in locations at P.S. 33 and the Penn South apartment building along Ninth Avenue representative of distances of 60 feet and 200 feet respectively from the single lane equivalent noise source, a distance of 240-280 feet from the single lane equivalent noise source would be necessary to achieve an L_{33} of 65 dBA. Assuming on grade construction of housing, a substantial setback from Ninth Avenue (and Tenth Avenue) would be necessary unless acoustical measures were taken.

Figure 2 illustrates the impact of existing ambient noise levels with air-rights construction atop the VMF and with housing at grade, both assuming no acoustical treatment. Because of the interposition of the VMF, apartment tower setbacks from the property line (or edge of VMF roof) need only be approximately 120 feet, a difference of some 90 feet from the on grade situation. Moreover, an at grade setback of approximately 110 feet from 29th Street would be necessary without acoustical treatment of housing facades with living rooms facing the street, due to the direct at grade impact of Morgan Station loading dock activity and city traffic on 29th Street. No setback is necessary along 28th Street in either case.

In short, of a block measuring 200 by 800 feet, only 90 by 380 feet (deducting necessary setbacks) could be utilized for housing at grade, compared to an air-rights area of 175 by 500 feet. In terms of usable block area, again assuming no acoustical treatment, only 22 percent of the site could be occupied by housing at grade, whereas 55 percent could be occupied by housing atop the VMF, more if the low-rise clusters and high-rise towers were transposed.

Acceptable interior noise levels can be achieved for the housing configuration as proposed through the use of sound insulating windows and air conditioners, as discussed in Section VIII.C.1.(b) and C.5.(b). Maintenance of the same housing configuration at grade, would require greater outside-to-inside noise reductions through housing facades (at higher cost), because of closer proximity to street level noise sources.



COMPARATIVE IMPACTS OF AMBIENT TRAFFIC NOISE
ALONG NINTH AVENUE ON SITING OF HOUSING
(WITH NO ACOUSTICAL TREATMENT)

Figure 2

E. OTHER HOUSING ASPECTS

E.1 COST COMPARISONS

In order for the City to provide housing alone on the 29th Street site, Public Law 92-313 requires that the site be acquired at fair market value if not used by the Postal Service. At hearings leading to the law, the value of the site was estimated at between $9.5 and $15.0 million. Housing at grade further would require additional investment in foundation and utility construction, estimated by the City at approximately $1.0-$1.5 million more than housing's $1.9 million agreed share of such costs utilizing air rights above the VMF.

Total extra costs for construction of housing at grade would range from $10.5 to $16.5 million. Using the proposed 864-unit project as reflecting allowable R-8 zoning densities, this extra cost equates to $12,000-$19,000 per unit. With this surcharge cost, provision of low- and moderate-income housing at grade would be economically prohibitive.

E.2 SOCIAL COMPARISONS

Construction of housing at grade has both positive and negative social impacts. On the positive side, interaction between housing and the community would be improved with no vertical separation from street level. On the other hand, separation from street level may provide for a safer environment at deck level than at street level. Normal community surveillance from bordering streets would be precluded by an elevated environment. A street level environment, however, would expose the housing project site to a greater ease of outside entry of an anti-social nature.

The principal negative impact would be the grade level exposure of the housing site to the 24-hour truck loading and unloading activity at the Morgan Station docks along 29th Street. The environment of lower story apartments and sitting and recreation areas on the site at grade level would be impaired substantially by the adverse visual and acoustical conditions attendant with 29th Street activity.

REVISED DRAFT

ENVIRONMENTAL STATEMENT

(TECHNICAL APPENDICES)

UNITED STATES POSTAL SERVICE

MANHATTAN VEHICLE MAINTENANCE FACILITY

NEW YORK, NEW YORK

Prepared by

U.S. ARMY ENGINEER DISTRICT, NEW YORK, NEW YORK

November, 1973

INTRODUCTION

This section includes Technical Appendices describing the detailed background studies undertaken in conjunction with the preparation of the Draft Environmental Impact Statement for the proposed Manhattan Vehicle Maintenance Facility (VMF), and is provided as a supplementary document to that Statement. These appendices include discussions of input data, analytical criteria, assumptions and procedures used in the studies, and tabulations of study outputs.

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TABLES (Cont'd.)

FIGURES

TECHNICAL APPENDIX A

SOCIO-ECONOMIC ANALYSES

A.1 SCHOOL POPULATION ESTIMATES

Estimates of school age population generated by the air rights housing portion of proposed VMF project were based upon the Manhattan school age population per dwelling unit data developed by the New York City Board of Education and the City Planning Commission. School age population per dwelling unit rates are given for the K (kindergarten)-4, and 5-8 grade groups by type of housing and duration of occupancy. Estimates of school population generated by the proposed project were made utilizing rates which reflect FHA 221(d)(3), UDC236, and FHA236 housing (moderate income units) and public housing (low income).

These estimates are based on the following premises:

(1) The proposed housing is to be constructed under R-8 zoning requirements, with 864 dwelling units and the following housing mix as recommended by the City: 60 percent moderate income, 30 percent low income, and 10 percent senior citizen.

(2) School age population per dwelling unit estimates are based upon the first and sixth years of occupancy of the housing development. The sixth year is chosen as indicative of the peak contribution of school age children per dwelling unit.

(3) School age population per dwelling unit for grades 9 through 12 was based on rates for grades 5 through 8; the pre-kindergarten population was estimated using one-fifth of the K through 4 rate. Resultant school age population projections, by school grade group, are summarized in Table A-1.

(4) All children of school age are in public schools. This is a "worst case" condition since many would be in non-public schools or, in the case of pre-kindergarten and upper high school grades, many would not be in school at all.

Impacts of the additional pupil load from the proposed housing project on school enrollment and utilization are shown in Table A-2. Post development enrollment is based on 1971 school enrollment plus the estimated school age population from the VMF housing project. Utilization rates were calculated assuming no change in present (1971) school capacities.

Table A-1

ESTIMATED SCHOOL AGE POPULATION:
PROPOSED VMF AIR RIGHTS HOUSING

Housing Mix				Population per Grade Group			
Type	% Distribution	Number of Units	Year of Occupancy[1]	PK-5	6-9	10-12	Total
Low Income[2]	30	260	First	153	62	47	262
			Sixth	221	94	70	385
Moderate Income[3]	60	518	First	112	47	36	195
			Sixth	232	99	78	409
Senior Citizen	10	86	--	-	-	-	-
All	100	864	First	265	109	83	457
			Sixth	453	193	148	794

(1) Indicates year of occupancy from date of opening of housing project

(2) Public Housing

(3) FHA 236, UDC 236, FHA 221(d)(3)

Source: Edwards and Kelcey
(Derived from City Planning Commission and Board of Education Data)

Table A-2

ESTIMATED SCHOOL ENROLLMENT AND UTILIZATION
(IMPACT OF AIR RIGHTS HOUSING)

	P.S. 33 (Grades PK-5)	I.S. 70 (Grades 6-9)	Hughes H.S.[2] (Grades 10-12)
Rated Capacity (No.)[1]	966	1,654	3,120
Enrollment (No.)[1]	555	1,334	2,604
Utilization (%)	57	81	83
With Air Rights Housing			
Enrollment--First Year of Occupancy (No.)	820	1,443	2,687
Utilization (%)	85	87	86
Enrollment--Sixth Year of Occupancy (No.)	1,008	1,527	2,752
Utilization (%)	104	92	88

(1) Enrollment and capacity as of October 29, 1971.

(2) High school students can attend Charles Evans Hughes or Seward Park High Schools. Since the latter is presently over capacity, all project high school age students from the VMF housing project have been assigned to Hughes H.S. for purposes of analysis.

Sources: Utilization of School Buildings 1971-1972, City of New York Board of Education; City Planning Commission; Edwards and Kelcey.

A.2 BLOCK AND TRACT STATISTICS

Data from the 1960 and 1970 U.S. Censuses of Population and housing were summarized in tabular form as background input to the evaluation of socio-economic conditions and impacts. The four census tracts lying wholly or partially within the primary impact area of the proposed VMF are Tracts 93, 97, 99, and 103. Since present (1970) Tract 99 consisted in 1960 of two separate tracts, 99 and 35, 1960 Census data from Tract 35 were combined with Tract 99 data to provide a compatible base for analysis. Housing data tabulations for each of the tracts are found in Tables A-3 and A-4. A map illustrating the census tract boundaries can be found on Figure II-13 of the Environmental Statement.

Table A-3

HOUSING SUPPLY BY CENSUS TRACT AND BLOCK

1960-1970

Block Boundaries	1960	1970	1960-1970 Numerical Change	1960-1970 Percentage Change
Eighth to Ninth Avenues				
22-23 Street	1093	920	(173)	(16)
23-24 Street	393	298	(95)	(24)
24-25 Street	655	788	133	20
25-26 Street	287	366	79	28
Ninth to Tenth Avenues				
22-23 Street	1099	776	(323)	(29)
23-24 Street	1686	1656	(30)	(2)
24-25 Street	628	547	(81)	(13)
25-26 Street	450	711	261	58
Sub-total Census Tract 93	6291	6026	(229)	(4)
Eighth to Ninth Avenues				
26-28 Street	148	1131	983	664
28-29 Street	43	371	328	763
29-30 Street	1096	562	(534)	(49)
Ninth to Tenth Avenues				
26-28 Street	324	387	63	19
*28-29 Street	215	-	(215)	(100)
Sub-total Census Tract 97	1826	2451	625	34

* Proposed VMF Site

( ) Loss

(Continued)

Table A-3 (Continued)

Block Boundaries	1960	1970	1960-1970 Numerical Change	1960-1970 Percentage Change
Eighth to Ninth Avenues				
30-31 Street	624	319	(305)	(49)
31-33 Street	–	1	1	100
33-34 Street	441	111	(330)	(75)
Ninth to Tenth Avenues				
30-31 Street	25	18	(7)	(28)
33-34 Street	237	398	161	68
Sub-total Census Tract 103	1327	847	(480)	(36)
Tenth to Eleventh Avenues				
19-20 Street	20	10	(10)	(50)
21-22 Street	21	20	(1)	(5)
22-23 Street	24	38	14	58
23-24 Street	88	7	(81)	(92)
24-25 Street	–	6	6	100
26-27 Street	–	1	1	100
27-28 Street	53	46	(7)	(13)
28-29 Street	83	58	(25)	(30)
29-30 Street	42	–	(42)	(100)
30-32 Street	–	1	1	100
33-34 Street	46	57	11	24
34-35 Street	39	8	(31)	(79)
37-38 Street	52	53	1	2
Sub-total Census Tract 99	468	305	(163)	(35)
Total Housing Supply	9912	9665	(247)	(2)

Source: U.S. Census of Housing. Block Statistics. 1960-1970

( ) Loss

Table A-4

HOUSING SUPPLY CHARACTERISTICS 1970

	Census Tract				
	93	97	99	103	Totals
Tenure (Units)					
Owner Occupied	1,203	1,298	1	4	2,496
Rental Occupied	4,566	1,104	204	799	6,673
Units Lacking (Units)					
Plumbing	1,002	280	20	294	1,596
Kitchen Facilities	735	133	9	277	1,154
Percentage Overcrowding (1)	3	3	8	5	
Median Rent ($/Month)	111	104	73	132	
Room Distribution (%)					
1-2 Rooms	46	21	21	79	
3-4 Rooms	47	68	66	20	
5-6 Rooms	6	10	13	1	
7 or More Rooms	1	1	-	-	

(1) 1.01 or more persons per room.

Source: U.S. Census of Population and Housing, New York SMSA, 1970.

Table A-5

TOTAL POPULATION BY CENSUS TRACT AND BLOCK

1960-1970

Block Boundaries	1960	1970	1960-1970 Numerical Change	1960-1970 Percentage Change
Eighth to Ninth Avenues				
22-23 Street	1598	1219	(379)	(24)
23-24 Street	295	410	115	39
24-25 Street	345	1486	1141	331
25-26 Street	268	615	347	92
Ninth to Tenth Avenues				
22-23 Street	1660	817	(843)	(51)
23-24 Street	2803	2413	(390)	(14)
24-25 Street	1257	928	(329)	(26)
25-26 Street	1539	2241	702	46
Sub-total Census Tract 93	9765	10,129	364	4
Eighth to Ninth Avenues				
26-28 Street	409	2138	1729	423
28-29 Street	44	676	632	1436
29-30 Street	1697	992	(705)	—
Ninth to Tenth Avenues				
26-28 Street	1344	1145	(199)	(148)
*28-29 Street	675	—	(675)	(100)
Sub-total Census Tract 97	4169	4951	782	19

* Proposed VMF Site

( ) Loss

(Continued)

Table A-5 (Continued)

Block Boundaries	1960	1970	1960-1970 Numerical Change	1960-1970 Percentage Change
Eighth to Ninth Avenues				
30-31 Street	665	409	(256)	(39)
31-33 Street	–	1	1	100
33-34 Street	479	238	(241)	(50)
Ninth to Tenth Avenues				
30-31 Street	54	44	(10)	(19)
33-34 Street	400	607	207	52
Sub-total Census Tract 103	1598	1299	(299)	(19)
Tenth to Eleventh Avenues				
19-20 Street	20	276	256	1280
21-22 Street	63	36	(27)	(43)
22-23 Street	68	89	21	31
23-24 Street	62	15	(47)	(70)
24-25 Street	–	12	12	100
26-27 Street	–	1	1	100
27-28 Street	113	88	(25)	(22)
28-29 Street	184	177	(7)	(4)
29-30 Street	101	–	(101)	(100)
30-32 Street	–	1	1	100
33-34 Street	154	133	(21)	(14)
34-35 Street	107	14	(93)	(87)
37-38 Street	132	9	(123)	(93)
Eleventh to Twelfth Avenues				
34-37 Street	–	8	8	100
Sub-total Census Tract 99	1004	859	(145)	(14)
Total Population	16,536	17,238	702	4

( ) Loss

Table A-6

AGE DISTRIBUTION BY CENSUS TRACT

1960-1970

Age Group	Tract 93 1960	Tract 93 1970	Tract 97 1960	Tract 97 1970	Tract 99 1960	Tract 99 1970	Tract 103 1960	Tract 103 1970
Under 5	615	295	340	202	102	40	56	24
5-9	497	377	336	317	82	45	25	17
10-14	437	437	376	299	72	44	23	19
15-19	374	422	313	240	64	135	59	19
20-24	698	722	322	266	47	109	154	113
25-34	1,674	1,336	667	503	137	145	306	302
35-44	1,454	1,374	592	523	152	110	232	192
45-54	1,424	1,447	472	567	117	88	253	216
55-59	775	850	194	366	54	48	137	99
60-64	650	895	173	439	69	41	130	89
65 and over	1,177	1,974	384	1,249	101	54	230	209
Totals	9,765	10,129	4,169	4,951	997	859	1,605	1,299

Source: U.S. Census of Population, 1960-1970.

TECHNICAL APPENDIX B

TRAFFIC ANALYSES

B.1 STUDY APPROACH

Traffic studies were carried out to identify existing and estimate post-development traffic conditions, focusing on a primary study area bounded by Eighth and Eleventh Avenues, and 25th and 30th Streets. For this area the following were done:

(1) Public and private agencies were contacted to assemble all pertinent available data on present roadway and traffic characteristics, related operational and planning concerns, and the proposed operations of postal vehicles.

(2) Supplementary traffic counts were taken during peak A.M. and P.M. traffic periods at the intersections directly adjacent to the site. Traffic operations in and adjacent to the impact study area were observed during both peak and off-peak hours.

(3) Average peak period traffic demand, both present and with the proposed development, were estimated for each street segment in the study area, as input to the evaluation of air, noise, and traffic operation impacts. Where appropriate, consideration was given to related changes in traffic demands affecting streets outside the primary study area.

B.2 PRESENT TRAFFIC DEMANDS

B.2.(a) Traffic data used to identify existing demands included:

(1) A.M. and P.M. peak hour and off-peak turning movement and vehicle classification counts taken at nearby intersections on 23rd, 29th, and 34th Streets by Parsons, Brinckerhoff, Quade & Douglas, Inc., in conjunction with the West Side Highway Study.

(2) Automatic Traffic Recorder (ATR) counts conducted by the New York State Department of Transportation during May and June 1972 at various locations on Ninth, Tenth, and Eleventh Avenues.

(3) ATR counts conducted by the New York City Department of Traffic during 1968 to 1972 at various locations on each street and avenue in and adjacent to the study area.

These data were supplemented by peak period turning movement and vehicle classification counts taken at the intersections directly adjacent to the proposed site and by vehicular counts taken in conjunction with noise level surveys. Each count was interpreted within the context of the combined set of data to determine its validity and applicability. As a result, a composite picture was formed of traffic patterns and peak period demands.

B.2.(b) Variation in traffic demand was investigated using available traffic counts for Ninth and Tenth Avenues, and 28th and 29th Streets in the vicinity of the proposed site. These streets were considered the most significant for impact analyses and to have traffic patterns generally representative of the remaining study area roadways. Average weekday traffic volumes were selected as appropriate for analysis. Weekday volumes are relatively stable with only minor increases from Monday through Friday, while Saturday and Sunday volumes drop to approximately 65 and 60 percent, respectively, of average weekday volumes.

Inspection of the hourly variations in traffic, summarized in Table B-1, revealed the periods from 8 to 10 A.M. and from 4 to 6 P.M. to be the most critical for traffic operations analyses. Average hourly traffic characteristics for these periods, therefore, were used for basic analyses of traffic demands on the study area street system. At the same time, the variation summary served as a means for comparative estimates of off-peak flow, including estimation of volumes during the peak period of VMF operation and alternate periods critical for noise analysis.

B.2.(c) A.M. and P.M. average weekday peak-hour traffic volumes were estimated for each of 21 selected roadway segments in the study area, based on the composite of the available counts. Adjacent to the site, each block was considered separately; multi-block "averaged" segments were considered appropriate for analysis in most of the remaining study area. Each segment was given an alphabetic identification, as shown on Figure B-1.

Peak period percentages of heavy duty (over 3-ton gross weight), commercial (trucks and bus) traffic were also estimated, for input to air quality and noise emission studies. The existing peak-hour total volumes and commercial vehicle percentages are summarized in Table B-2. Estimated components of heavy duty gasoline (nearest 5 percent of total volume) and diesel (nearest 1 percent of total volume) powered vehicles are identified separately.

B.3 NORMAL TRAFFIC GROWTH

Based on investigation of past traffic counts, total vehicle trip end projections and discussions with city traffic officials, no

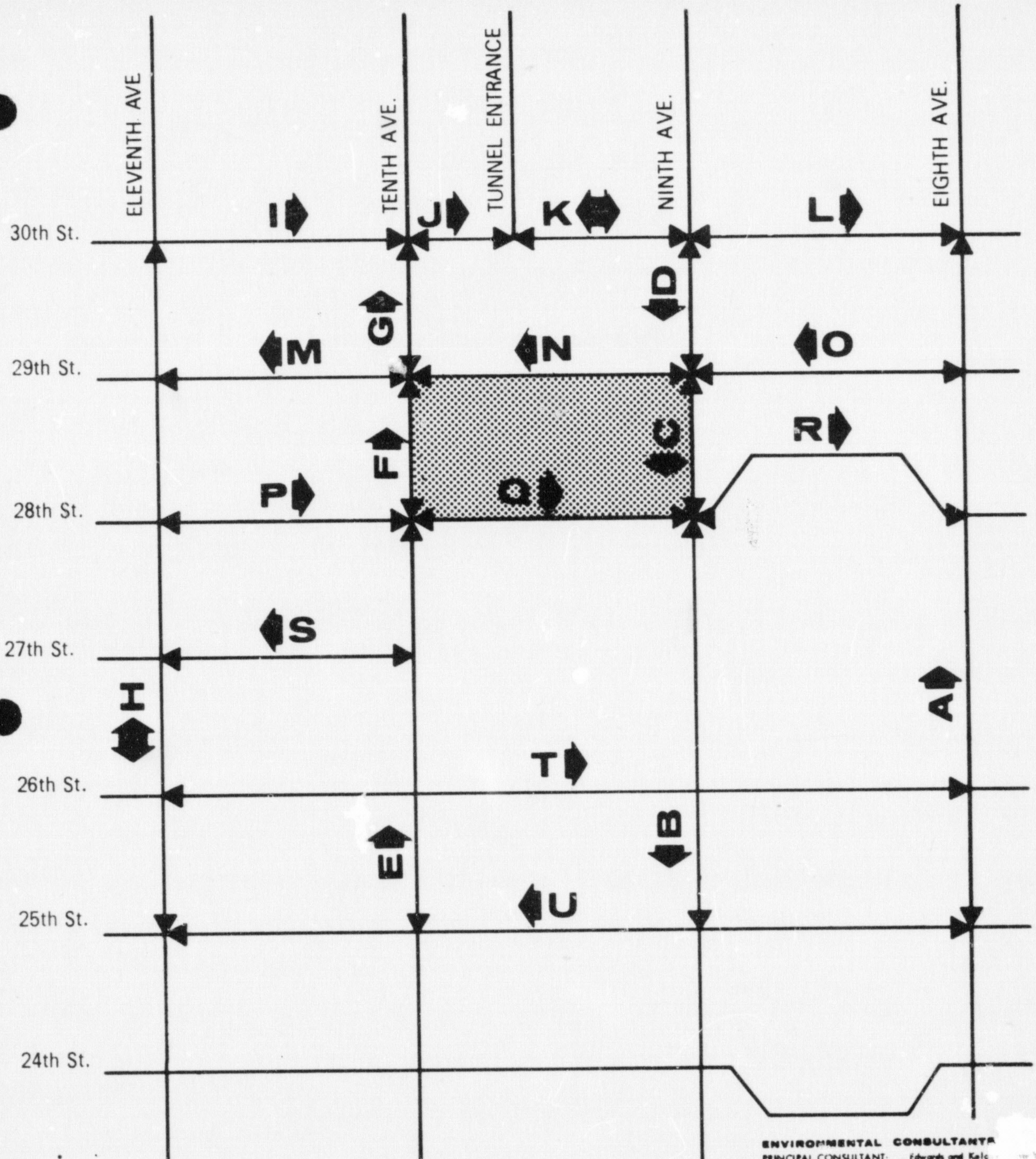
Table B-1

WEEKDAY AVERAGE HOURLY TRAFFIC VOLUMES

Time	Ninth Ave.	Tenth Ave.	28th Street	29th Street
6-7 A.M.	700	400	50	200
7-8	1,600	900	150	300
8-9	$\boxed{1,700}$	950	$\boxed{250}$	350
9-10	$\boxed{1,700}$	950	$\boxed{250}$	400
10-11	1,600	950	$\boxed{250}$	450
11 A.M.-12 P.M.	1,450	1,000	200	450
12-1	1,400	1,000	200	400
1-2	1,350	1,100	200	450
2-3	1,350	1,100	200	500
3-4	1,350	1,200	200	600
4-5	1,400	$\boxed{1,400}$	200	$\boxed{650}$
5-6	1,400	$\boxed{1,400}$	200	$\boxed{650}$
6-7	1,150	1,050	100	400
7-8	1,000	650	100	250
8-9	800	450	50	150
9-10	700	300	50	100
10-11	800	300	50	150
11 P.M.-12 A.M.	650	300	50	100
12-6 A.M. (Average)	350	200	20	60

$\boxed{000}$ Peak Traffic Periods

Count Locations: Ninth Avenue and Tenth Avenue between 25th and 26th Streets.
28th and 29th Streets between Ninth Avenue and Tenth Avenue.



ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelc[illegible] New York
AIR QUALITY CONSULTANT: Environmental Res[illegible] Techn[illegible], Inc.
Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, [illegible]
Cambridge, Mass.

PROPOSED VMF

DIRECTION OF FLOW

STREET SEGMENT KEY MAP

Figure B-1

Table B-2

AVERAGE WEEKDAY PEAK HOUR TRAFFIC--EXISTING

Street Segment	Dir.	A.M. Peak Hour Total Vehicles	A.M. % Trucks and Buses Gas	A.M. % Trucks and Buses Diesel	P.M. Peak Hour Total Vehicles	P.M. % Trucks and Buses Gas	P.M. % Trucks and Buses Diesel
A	NB	1,200	15	2	1,700	10	2
B	SB	1,700	25	3	1,400	25	3
C	SB	1,800	25	3	1,500	20	3
D	SB	1,600	25	3	1,400	20	3
E	NB	900	40	6	1,400	20	5
F	NB	900	40	6	1,350	20	5
G	NB	1,100	35	5	1,800	20	4
H	NB) SB)	900	30	5	900	20	4
I	EB	300	35	3	300	20	5
J	EB	400	35	3	800	15	3
K	EB) WB)	1,050	35	3	700	15	3
L	EB	700	35	3	500	15	3
M	WB	150	45	1	200	40	2
N	WB	350	20	1	650	25	2
O	WB	550	20	2	750	25	2
P	EB	250	35	2	150	20	5
Q	EB	250	30	1	200	15	4
R	EB	350	20	1	300	15	1
S	EB	50	35	2	100	30	2
T	EB	300	20	1	250	15	1
U	WB	200	15	-	400	15	1

- Negligible.

significant changes in traffic are currently foreseen for the area. Counts over the past ten years indicate that, in general, volumes in the study area have remained relatively stable. The Tri-State Planning Commission projects a total of approximately 45,000 vehicle trip destinations in 1985 for a square-mile area encompassing the proposed site. This compares to a 1963 figure of approximately 48,100 vehicle trip destinations, indicating a slight 6 percent net loss from 1963 to 1985.

Among strategies of the New York City Air Quality Implementation Plan, those calling for the improvement of public transportation alternatives and institution of traffic and parking control programs should serve to reduce traffic volumes in the study area. Such strategies are in addition to controls directly affecting vehicle emission rates which are discussed in Technical Appendix C. Overall, the transportation improvement and traffic control programs are expected to reduce motor vehicle emissions in the approximate range of 5 to 25 percent. However, no specific programs which would reduce study area street traffic volumes have been identified to date.

Coordination with, and assessment of potential impacts of other major projects in nearby areas was carried out in meetings with representatives of such projects. Each project and its anticipated effect on traffic in the vicinity of the proposed VMF are summarized below.

(1) Current West Side Highway Project studies involve seven alternative "program package" concepts for highway and transit development, ranging from a "do nothing" alternative to development of a new highway and transit route at the outer edges of new Hudson River landfills. Three of the alternatives would likely require Federal Interstate funding, thus opening the West Side Highway to truck use. Project traffic studies to assess the impacts of the various alternatives on existing street traffic have not been completed to date. Currently, efforts are being made to reflect strategies of Air Quality Implementation Plan in the traffic projection process. Generally, West Side Highway improvements are expected to have a positive effect on existing street traffic conditions, diverting substantial truck and some auto traffic. Preliminary traffic assignments indicated that development of those alternatives permitting truck usage could divert up to approximately one-third of existing traffic from the Eleventh Avenue to Eighth Avenue corridor.

    Present access to the West Side Highway is in the vicinity of 23rd and of 40th Streets. Three of the preliminary design concepts include additional West Side Highway connector ramps

to existing Lincoln Tunnel ramps at 31st Street between Ninth and Tenth Avenues. These connections have been designed, however, to maintain 31st Street open for westbound traffic. Other potential West Side Highway ramps vary by alternate, but in no case are expected to significantly alter crosstown traffic on local streets in the VMF study area.

(2) The proposed Convention and Exhibition Center west of Twelfth Avenue between 43rd and 47th Streets is currently scheduled to be under construction by Spring 1974, with completion in 1976. Anticipated traffic is expected to primarily use Twelfth Avenue and crosstown routes between 42nd and 57th Streets. The project should have no measurable impact on traffic in the VMF study area.

(3) The Herald Square Project is currently in preliminary project proposal and study phases At this time, the only study proposal which would affect traffic in the VMF study area would be a possible closing of Broadway in the vicinity of Herald Square. Initial estimates of possible traffic rerouting indicate that a maximum of approximately 150 southbound vehicles could be diverted to Ninth Avenue during peak traffic hours. An increase of this magnitude could be accommodated without any significant changes in prevailing operating conditions on Ninth Avenue.

(4) The Garment Center Urban Goods Movement Study is a technical study project aimed at finding practical ways to improve the movement of goods and people in the garment district. The project is currently in initial phases of data collection and analysis. Anticipated immediate action and long-range improvement programs are expected to primarily affect traffic in the study area north of 34th Street. No significant changes in VMF study area traffic volumes resulting from the garment center studies are anticipated at this time.

Overall, the combined effect of Air Quality Implementation Plan strategies and nearby development projects should result in reduced traffic volumes on the study area streets. However, speculation at this time of the magnitude of reduction, either overall or for any specific street segment in the study area was not considered to be appropriate. For purposes of analysis, therefore, future traffic without the proposed VMF and apartment facility was considered to be equal to present traffic. Future volumes both with and without the VMF thus represent a conservative or "worst case" approach.

B.4 DEVELOPMENT TRAFFIC

Changes in study area traffic due to the proposed project are of three types: (1) traffic generated by the proposed Vehicle Maintenance Facility (VMF) and Preference Mail Center (PMC), (2) traffic generated by the proposed apartment complex, and (3) traffic diversions as a result of the proposed 29th Street restrictions on non-postal vehicles.

B.4.(a) VMF and PMC demand estimates were based on vehicle operation schedules and characteristics provided by the U. S. Postal Service, identified below. Postal vehicle movements were assigned to the street system assuming: (1) two-directional postal vehicle operation on 29th Street between Ninth and Tenth Avenues, with non-postal vehicle traffic prohibited during all hours except the P.M. peak period; (2) westbound operation only during the P.M. peak period, with one postal and two non-postal traffic lanes.

- o VMF architectural plans provide for 771 truck, 93 tractor, 24 trailer, and 30 official use automobile parking spaces.

- o Maintenance and storage locations to be replaced by the proposed VMF presently accommodate 767 postal vehicles, of which 664 are gasoline-powered and 103 are diesel-powered (tractor) units. Of the 664 gas-powered vehicles, 502 (or 76 percent) are light duty units having air pollutant and noise emission characteristics similar to those of passenger cars.

- o Approximately 2,200 postal vehicle movements into and out of (total) the VMF are anticipated on an average weekday. Proposed scheduling of these movements, by direction, vehicle type, and hour of day is shown in Table B-3. The proposed schedule reflects a rescheduling, as compared to current operations, of approximately 110 VMF and PMC movements per hour from the 4 P.M. to 7 P.M. peak street traffic hours primarily to late evening (9 P.M. - 12 A.M.) hours. This approximately 55 percent reduction in postal movements during the evening rush hours is necessary to allow non-postal vehicle use of 29th Street and is consistent with "after-hour" truck delivery and goods movements control strategies of the New York City Air Quality Implementation Plan.

- o Local postal zones to be served by the VMF cover the west side of Manhattan south of 134th Street and the east side of Manhattan south of 40th Street. Based on vehicle assignments to each of the postal zones served, approximately one-half of the daily movements will be to locations north of the VMF, outbound via Tenth Avenue and inbound via Ninth Avenue. The remaining movements will be to locations south of the site, outbound via

Table B-3

ANTICIPATED POSTAL VEHICLE MOVEMENTS BY VEHICLE TYPE AND DIRECTION--

AVERAGE WEEKDAY

	To/From (Total) City Streets																Between VMF and PMC Only
	To/From North								To/From South								
	VMF				PMC				VMF				PMC				
Time	1/4 to 2 Ton	5 Ton	Diesel	Total	1/4 to 2 Ton	5 Ton	Diesel	Total	1/4 to 2 Ton	5 Ton	Diesel	Total	1/4 to 2 Ton	5 Ton	Diesel	Total	5 Ton
12-1A		4	+ 18	= 22	2	+ 22	+ 2	= 26		4	+ 18	= 22	2	+ 13	+ 2	= 17	16
1-2		4	+ 9	= 13	2	+ 13	+ 2	= 17		4	+ 19	= 13	2	+ 14	+ 2	= 18	8
2-3		4	+ 10	= 14	2	+ 18	+ 1	= 21		4	+ 10	= 14	2	+ 13	+ 1	= 16	6
3-4		4	+ 11	= 15	2	+ 13	+ 1	= 16		4	+ 11	= 15	2	+ 15		= 17	16
4-5	26	+ 4	+ 9	= 39	2	+ 23	+ 1	= 26	19	+ 4	+ 9	= 32	2	+ 24		= 26	12
5-6	80	+ 4	+ 9	= 93	2	+ 25		= 27	77	+ 4	+ 9	= 90	2	+ 25		= 27	32
6-7	91	+ 4	+ 8	= 103	2	+ 13	+ 1	= 16	86	+ 4	+ 8	= 98	2	+ 18	+ 1	= 21	22
7-8	70	+ 4	+ 10	= 84	2	+ 18		= 20	52	+ 4	+ 10	= 66	2	+ 18		= 20	36
8-9		4	+ 8	= 12	2	+ 13		= 15		4	+ 8	= 12	2	+ 14		= 16	28
9-10		4	+ 7	= 11	2	+ 15		= 17		4	+ 7	= 11	2	+ 15	+ 1	= 18	16
10-11		4	+ 9	= 13	2	+ 18		= 20		4	+ 9	= 13	2	+ 15		= 17	12
11-12P		4	+ 10	= 14	2	+ 16		= 18		4	+ 10	= 14	2	+ 17		= 19	10
12-1		4	+ 12	= 16	2	+ 16		= 18		4	+ 12	= 16	2	+ 17		= 19	14
1-2		4	+ 16	= 20	2	+ 13		= 15		4	+ 16	= 20	2	+ 15		= 17	20
2-3	41	+ 4	+ 17	= 62	2	+ 14	+ 1	= 17	29	+ 4	+ 17	= 50	2	+ 13		= 15	20
3-4	31	+ 4	+ 20	= 55	2	+ 14		= 16	11	+ 4	+ 20	= 43	2	+ 18	+ 1	= 21	36
4-5	31	+ 4	+ 5	= 40	2	+ 7		= 9	19	+ 4	+ 5	= 28	2	+ 6	+ 1	= 9	2
5-6	35	+ 4	+ 5	= 44	2	+ 11		= 13	15	+ 4	+ 5	= 24	2	+ 6		= 8	2
6-7	30	+ 4	+ 5	= 39	2	+ 11		= 13	20	+ 4	+ 5	= 29	2	+ 7		= 9	2
7-8	25	+ 4	+ 12	= 41	2	+ 32		= 34	35	+ 4	+ 11	= 50	2	+ 17		= 19	28
8-9	38	+ 4	+ 9	= 51	2	+ 35		= 37	51	+ 4	+ 10	= 65	2	+ 20		= 22	16
9-10	20	+ 4	+ 19	= 43	2	+ 34	+ 1	= 37	31	+ 4	+ 19	= 54	2	+ 29		= 31	34
10-11	10	+ 4	+ 21	= 35	2	+ 46		= 48	10	+ 4	+ 20	= 34	2	+ 35	+ 1	= 38	34
11-12A	6	+ 4	+ 25	= 35	2	+ 38		= 40	5	+ 4	+ 24	= 33	2	+ 41	+ 4	= 47	32
Totals	534	+ 96	+ 284	= 914	48	+ 478	+ 10	= 536	468	+ 96	+ 282	= 846	48	+ 425	+ 14	= 487	454

Ninth Avenue and inbound via Tenth Avenue. With two-directional flow for postal vehicles on 29th Street between Ninth and Tenth Avenues, the use of other streets in the study area for postal vehicle access, except during evening rush hours, is not anticipated.

- Approximately 500 inbound and 500 outbound VMF movements of light-duty (1/4 to 2 ton) vehicles are anticipated: outbound movements to the local postal zone offices are scheduled between the hours of 4 A.M. and 8 A.M., with return movements spread over the hours to 2 P.M. to 12 A.M. to reduce the impact during peak street traffic hours. These vehicles are used primarily for local collection and distribution of mail in each of the postal zones served by the VMF.

- Heavy-duty (5 ton and diesel) VMF vehicle movements occur both outbound and inbound throughout the day at a relatively constant rate; with exception for the peak hour to after hour shift described above, total movements are generally between 30 and 60 movements per hour. Of these movements, approximately 10 to 30 movements per hour are between the VMF and the Morgan Station PMC. Heavy-duty vehicles are used primarily for mail distribution between the area's major processing and transportation centers (e.g., Morgan PMC and the area airports) and the major local postal stations.

- Morgan Station PMC traffic on 29th Street is anticipated to remain relatively stable throughout the day, ranging from approximately 30 to 60 total vehicle movements per hour. During any hour the movements can be expected to be split equally between inbound and outbound movements and, as for the VMF, equally between north and south orientation. PMC traffic will consist of primarily 5-ton gas-powered units. The inclusion of PMC movements not coming from or returning to the VMF as development traffic actually somewhat overstates the impact of the proposed VMF project. However, since the hourly PMC volume on any segment (other than 29th Street) would be generally fewer than 15 vehicles, PMC traffic was included as part of the demand generated by the proposed development for purposes of analysis.

Changes in A.M. and P.M. peak-hour traffic on each of the study area street segments due to the proposed postal operations are shown in Table B-4, along with projected apartment and diverted movements which were determined as described below.

B.4.(b) Peak-hour traffic demands associated with the proposed housing complex were estimated on the basis of provision for resident parking only. Architectural plans indicate resident space provisions

Table B-4

ESTIMATED PEAK-HOUR TRAFFIC CHANGES DUE TO PROPOSED DEVELOPMENT

Street Segment	VMF-PMC		Apartment		Non-Postal Traffic Diversion	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
A	-	25	-	-	-	-
B	15		30	15	70	-
C	15		-	-	70	-
D	15	50	-	-	(50)	-
E	15		10	40	-	-
F	15		-	-	-	-
G	15	15	-	-	(250)	(130)
H	-	-	-	20	(50)	-
I	-	10	-	-	-	-
J	-	-	-	-	(50)	(30)
K	-	-	-	-	-	-
L	-		-	-	-	-
M	-	10	-	-	(100)	(20)
N	*	70	-	-	(350)	(150)
O	-	25	-	-	(200)	(150)
P	-	-	-	20	-	-
Q	-	-	10/60	60/30	-	-
R	-	-	30	15	-	-
S	-	-	-	-	-	-
T	-	-	-	-	-	-
U	-	-	-	10	50	20

*Postal vehicles only - volume varies within segment; see Table B-3 for total movements.

(00) Indicates estimated traffic reduction on segment due to 29th Street restrictions; all other values indicate traffic increase due to proposed development.

\- Negligible

for approximately 160 autos. Considering the relatively low usage of autos for work commutation in Manhattan and generalized trip generation characteristics for multi-unit apartments, vehicle trip generation during the peak street traffic hours was estimated as follows:

A.M. Peak Hour	10 in/60 out
P.M. Peak Hour	60 in/30 out

Assignment of these trips to the local street network, based on prevailing flow characteristics for the area, is summarized in Table B-4. The two values given for 28th Street Segment "Q" reflect subsections from Tenth Avenue to the parking entrances ramp and from the parking entrance ramp to Ninth Avenue, respectively.

B.4.(c) Traffic diversions due to the proposed closing of 29th Street to non-postal vehicles were estimated based on inspection of present turning movement counts along 29th Street. The 350 vehicles in the A.M. peak hour and approximately 450 vehicles per hour during midday hours presently using 29th Street between Ninth and Tenth Avenues will be required to seek alternate westbound routes. In addition, approximately 150 of the 640 vehicles using 29th Street in the P.M. peak hour are anticipated to divert to other streets due to the effects of restricted 29th Street operation. The effect of the estimated peak hour diversions on the study area street segments are indicated in Table B-4. Most of the present movements are anticipated to divert to streets north of the study area (250 of 350 vehicles in the A.M. peak, 400 of 450 during midday hours, and 130 of 150 in the P.M. peak). As a result, the diversions will reduce flow on many of the study area streets. Diversion impacts on 31st, 33rd, and 34th Streets are assessed under post-development traffic conditions in the following section.

B.5 POST-DEVELOPMENT TRAFFIC CONDITIONS

B.5.(a) Changes in daily postal vehicle travel for VMF garaged units were assessed by comparing the number of daily movements and travel distances between present/proposed garage locations and scheduled first (last) postal station stop in relation to the garage. All travel distances were scaled from city street maps based on present and estimated probable routing patterns. North-south routes are primarily on Ninth, Tenth, and Eleventh Avenues, east-west routes on crosstown arterials such as 23rd, 34th, and 42nd Streets. Table B-5 lists estimated daily vehicle miles of travel by vehicle type and postal station destination (origin). Light-duty vehicles serving lower Manhattan local postal stations are presently garaged on Leroy Street in the West Village area. The remaining light-duty vehicles in the VMF service area are presently parked at Piers 74-76

Table B-5

VMF TRUCK MOVEMENTS

Origin/Destination	No. of Daily Movements	Present Vehicle Mileage	Proposed Vehicle Mileage	Vehicle Mileage Change
1/4 to 2 Ton Units				
Bowling Green	18	36	70	
Trinity	16	26	56	
Church Street	118	147	378	
Wall Street	16	33	61	
Peck Slip	22	49	82	
Canal Street	60	33	150	
Prince	12	12	30	
Knickerbocker	32	62	109	
Village	34	12	54	
Subtotal @ Leroy St. Garage*	328	410	990	+580
Cooper	46	106	80	
Old Chelsea	38	58	34	
Peter Stuyvesant	16	43	34	
Madison Square	40	74	58	
Manhattanville	56	282	255	
Morningside	12	57	51	
Cathedral	40	154	130	
Planetarium	34	96	75	
Ansonia	44	85	81	
Radio City	56	80	75	
Murray Hill	58	93	84	
G.P.O.	70	35	25	
Times Square	48	38	41	
Midtown	116	89	87	
Subtotal @ Piers/34 St.Garage*	674	1290	1110	-180
Subtotal 1/4 to 2 Ton	1002	1700	2100	+400
5 Ton Units				
Church Street	96	345	307	
Grand Central	96	163	163	
Morgan Station	454	202	0	
Subtotal 5 Ton	646	710	470	-240
Diesel Tractors				
Lincoln Tunnel	142	64	86	
Midtown	36	27	27	
Times Square	36	13	31	
FDR	36	83	87	
Murray Hill	34	51	48	
Madison Square	32	58	47	
Old Chelsea	32	46	29	
Cooper	32	70	56	
Peck Slip	32	126	119	
Village	30	51	44	
Canal Street	30	83	75	
Church Street	94	338	301	
Subtotal Diesel	566	1010	950	-60
Totals	2214	3420	3520	+100

*Present garage location.

or the existing 34th Street garage (between Tenth and Eleventh Avenues). All heavy-duty and diesel units are now garaged at the 34th Street facility.

B.5.(b) A.M. and P.M. peak street traffic hourly volumes and composition for each study area street segment with the proposed development fully operational are summarized in Table B-6. They were calculated by applying the traffic estimated changes due to the proposed development, Table B-4, to existing conditions, Table B-2. These values were used to assess the proposed impact of the facility on traffic operations, and to estimate noise and air pollutant emissions due to traffic sources. Where appropriate for off-peak noise analyses, similar volume and composition estimates were developed using the 24-hour variation (Table B-1) and postal traffic (Table B-3) data along with classification data obtained in conjunction with the 24-hour noise surveys (see Appendix D).

B.5.(c) Diverted traffic impacts on 31st, 33rd, and 34th Streets will be greatest during midday hours when a combined westbound traffic increase of approximately 400 vehicles per hour is anticipated as a result of the closing of 29th Street to non-postal traffic. Resultant impact on traffic operations and air quality were analyzed under three alternate assumed conditions, as follows:

(1) Diverted traffic apportioned to 31st, 33rd, and westbound 34th Street on the basis of estimated capacities under prevailing parking conditions;

(2) Diverted traffic apportioned to 31st, 33rd, and 34th Streets on the basis of estimated capacities with vehicle parking limited to one side of 31st and 33rd Streets;

(3) Completely stalled traffic filling each street under prevailing parking conditions, which could occur with or without the diversions; this condition also reflects the worst possible case should unforeseen traffic increases occur due to other projects.

Presently, 31st, 33rd, and 34th Streets carry a combined midday westbound volume between Eighth and Tenth Avenues of approximately 1400 vehicles per hour. Although subject to intermittent delays and congestion due to conflicts with pedestrian and trucking operations, these streets are relatively uncongested with average overall midday travel speeds in the range of 10 to 15 miles per hour. While the hourly split between the streets varies in response to prevailing operations, 31st and 34th Streets carry an average of 500 westbound vehicles per hour, 33rd Street approximately 400 vehicles per hour as shown in Table B-7.

Table B-6

AVERAGE WEEKDAY PEAK HOUR TRAFFIC - POST-DEVELOPMENT

Street Segment[1]	Dir.	A.M. Peak Hour Total Vehicles	A.M. % Trucks and Buses Gas	A.M. % Trucks and Buses Diesel	P.M. Peak Hour Total Vehicles	P.M. % Trucks and Buses Gas	P.M. % Trucks and Buses Diesel
A	NB	1,200	15	2	1,725	10	2
B	SB	1,815	25	3	1,415	25	3
C	SB	1,885	25	3	1,500	20	3
D	SB	1,565	25	3	1,450	20	3
E	NB	925	40	6	1,440	20	5
F	NB	915	40	6	1,350	20	5
G	NB	865	35	6	1,685	20	4
H	NB) SB)	850	30	5	920	20	4
I	EB	300	35	3	310	20	6
J	EB	350	35	3	770	15	3
K	EB) WB)	1,050	35	3	700	15	3
L	EB	700	35	3	500	15	3
M	NB	50	90	2	190	45	4
N	WB	(2)	(2)	(2)	570	25	3
O	WB	350	15	1	625	25	2
P	EB	250	35	2	170	20	5
Q	EB	260/310[3]	30/25[3]	1	260/230[3]	10/15[3]	3
R	EB	380	20	1	315	15	1
S	EB	50	35	2	100	30	2
T	EB	300	20	1	250	15	1
U	WB	250	15	-	430	15	1

\- Negligible

(1) See Figure B-1.

(2) Postal vehicles only - volume varies within segment; see Table B-3 for total movements.

(3) Volumes shown are from Tenth Street to apartment parking entrance ramp and from exit ramp to Ninth Street, respectively.

Table B-7

MIDDAY WESTBOUND TRAFFIC

(Vehicles per hour between Eighth and Tenth Avenues)

With Prevailing Parking Conditions	Present (Average)	Postal Veh. Reduction	Estimated Diversion[1]	Net Volume	Estimated[1] Cp
34th Street	500	-20	+150	630	700
33rd Street	400	-30	+175	545	600
31st Street	500	-10	+ 75	565	600
Totals	1,400	-60	+400[2]	1,740	1,900

With Restricted Parking Conditions	Present (Average)	Postal Veh. Reduction	Estimated Diversion[1]	Net Volume	Estimated[1] Cp
34th Street	500	-20	+100	580	700
33rd Street	400	-30	+210	580	730
31st Street	500	-10	+ 90	580	700
Totals	1,400	-60	+400[2]	1,740	2,130

(1) Diverted traffic apportioned to 31-33-34 Streets based on estimated Cp (possible capacity) of the streets under "prevailing" and "restricted" parking conditions.

(2) 400 vph of 450 vph average midday volume from 29th Street.

Relocation to the VMF of vehicles garaged on 34th Street and the transfer of preferential mail operations to Morgan Station will eliminate approximately 60 midday westbound movements per hour of 5-ton postal vehicles from 31st, 33rd, and 34th Streets as shown in Table B-7. In addition, the current 34th Street eastbound volume of 650 vehicles per hour will be reduced by approximately 40 vehicles per hour and postal vehicle parking needs on 31st and 33rd Streets adjacent to the GPO will be greatly diminished.

Current posted parking regulations on 31st and 33rd Streets prohibit curb parking on at least one side during midday hours, with authorized vehicle parking, primarily for postal vehicles permitted in part along the opposite curbs. In practice, however, the parking of vehicles on both sides and/or truck loading operations restrict flow at most times to one effective lane of moving traffic. Under these "prevailing" parking conditions, 31st, 33rd, and 34th Streets have an estimated possible capacity (Level-of-Service E) of approximately 1900 vehicles per hour. The diversion of 400 vehicles from 29th Street, apportioned for analytical purposes as shown in Table B-7, would increase traffic to near capacity, increasing the frequency of delay and congestion. For purposes of air quality analyses, therefore, emissions rates for congested flow were assumed with the VMF in operation under prevailing parking conditions (see Technical Appendix C).

While elimination of all parking would be both impractical and unnecessary, rigid enforcement of existing parking prohibitions on at least one side of 31st and 33rd Streets would provide sufficient capacity to accommodate the additional diverted vehicles under conditions comparable or improved over present operations. Estimated diversion to each street with parking on 31st and 33rd Streets restricted to one side (i.e., two lanes of moving traffic) and relation to estimated capacity (over 2100 vehicles total) is shown in Table B-7.

As a worst case condition for air quality analysis, each street was assumed to be filled with stalled vehicles. Analyses carried out for the stalled conditions are described in Technical Appendix C.

TECHNICAL APPENDIX C

AIR QUALITY ANALYSES

C.1 STUDY APPROACH

The vehicle maintenance facility and the transportation related activities that it will generate are only a small part of the motor vehicle related sources of air pollution in Manhattan. The multitude of sources and the complexity of the air pollution problem in midtown Manhattan is such that it is very difficult to determine existing levels or project future levels of air quality. In particular, it is difficult to determine the influence of one single project on air quality. Accordingly, a study approach was used which relies as heavily as possible upon existing federal, state, and local air quality and air pollutant emissions data.

The degradation of the quality of the air by motor vehicles is almost exclusively a result of emissions from the evaporation and combustion of fuel. The extent of adverse environmental effects is directly related to the concentrations of these contaminants in the air. These concentrations are related to the quantity of pollution emissions from the vehicles. The concentrations are a complex function of the quantity and type of vehicle traffic, the configuration of the roadway lanes and the surrounding buildings, and the meteorological conditions in the vicinity of the road. In this study estimates of concentration levels of various pollutants are based on well documented mathematical modeling techniques which employ each of the factors above. Estimates of background pollution levels - contaminants not emitted from the modeled roads - are added to the model results at each model receptor location to determine air quality. These concentration distributions are compared to levels of contaminants which have been shown to result in adverse effects upon persons, animals, and vegetation.

Potential changes in air quality due to VMF operations were investigated on three levels of concern:

(1) The microscale of individual street segments in the vicinity of the project site and of the VMF site itself.

(2) The mesoscale of the fifteen-block study area.

(3) The macroscale of a larger area of Manhattan.

The analyses concentrated on a quantitative assessment of microscale impact, taking into account variations in source generating activities in the vicinity of the proposed VMF as well as sensitive land uses

and activities (termed critical receptors) in the study area. In assessing the potential impact of the VMF, three separate means of affecting air quality in the study area were considered. First, the changes in pollutant levels due to changes in traffic patterns as a result of constructing the VMF were analyzed. Second, the impact of the internal operations of the VMF upon the air quality of the neighborhood were considered. Third, the impact of vehicular emissions on the VMF and the housing units was calculated.

In each case calculations and assumptions have been based on a "worst case" premise. Output is indicative of what will be the most severe impacts the proposed facility can be expected to generate at maximum levels of use, and at maximum traffic levels. The traffic is treated as a network of line sources of pollutants, while the operations of the VMF may be treated as a point source due to the closed ventilation system of the building. In addition, a special analysis was carried out to evaluate the impact on air quality in the housing units resulting from local traffic emissions.

C.2 DATA SOURCES - PRESENT AIR QUALITY

Present air quality in the vicinity of the proposed VMF site was estimated on the basis of available data for air quality measurements and source emissions. All of the information used was made available by the New York City Department of Air Resources, either in the form of the Air Quality Implementation Plan for New York City, or through discussions with Department officials. Other potential sources of information, including additional measurements programs in New York City, were not found useful to the study. The primary sources of existing air quality was the control strategy for carbon monoxide, hydrocarbons, and nitrogen oxide in the New York City Implementation Plan. The sampling data available indicates that air quality standards are being exceeded for all three pollutants.*

C.2.(a) Nitrogen oxide content was based on measurements from the New York City uptown laboratory station, which reported an annual average of 0.09 ppm NO_2 for 1970. This value was confirmed by a special summer

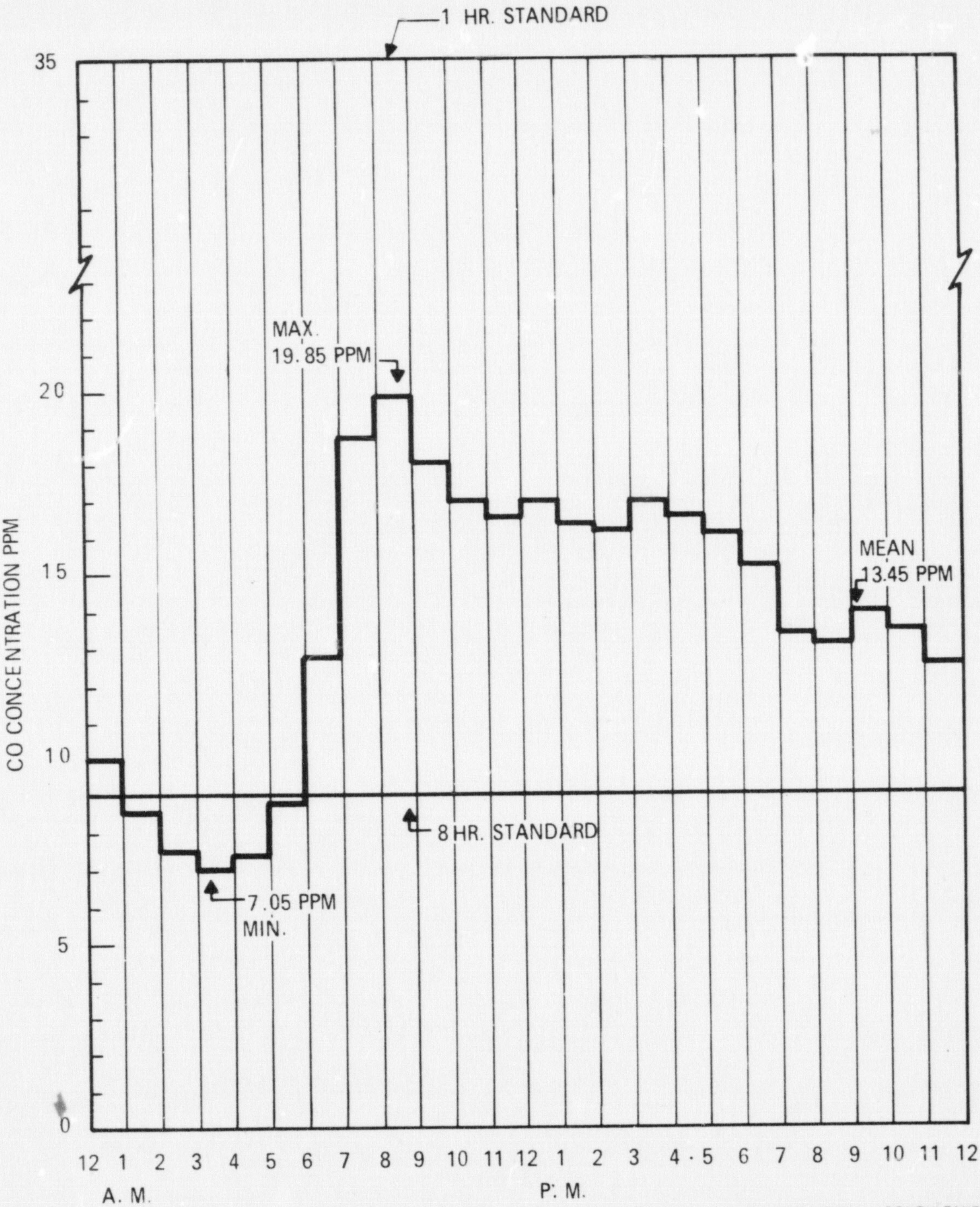
*The appropriate standards used here are the Federal Environmental Protection Agency National Ambient Air Quality Standards, which are applicable to New York State and New York City. These standards consist of 0.05 ppm (average annual value) for nitrogen dioxide, 35 ppm (one-hour maximum value) for carbon monoxide and 0.24 (three-hour average value for 6 to 9 A.M.) for hydrocarbons less methane.

study conducted by the Federal EPA in 1971. Furthermore, estimates have shown that 0.06 ppm of this total comes from stationary sources and 0.03 from transportation sources. The implementation plan assumes that the stationary source contribution is uniform throughout Manhattan, whereas the midtown Manhattan peak area annual values for nitrogen dioxide from transportation sources would be 2.75 times that found at the uptown laboratory. This yields a current value of 0.14 ppm annual average for the midtown Manhattan area, which is representative of the VMF site.

C.2.(b) Data for hydrocarbons were found to be extremely limited. Based upon maximum one-hour and twenty-four-hour total hydrocarbons values on Welfare Island, it was estimated that the concentration for the worst three-hour period was approximately 8 ppm. When this was adjusted for methane hydrocarbons, the non-methane hydrocarbon level was assumed to be 0.8 ppm for a maximum three-hour concentration; 77 percent of this level was assumed to be from mobile sources. When the adjustment factor of 2.75 for midtown values was applied, a total three-hour maximum hydrocarbon value of 1.88 ppm was derived.

C.2.(c) Carbon monoxide data are available from a total of 15 stations in New York City. Most of the stations had maximum eight-hour values in the range of 8 to 12 ppm, and maximum one-hour values in the range of 15 to 30 ppm. An additional station was set up specifically to measure carbon monoxide levels near street level in a congested portion of the midtown Manhattan central business district at 110 East 45th Street near Lexington Avenue. This station showed a one-hour peak of 65 ppm, almost twice the Federal Standard, and an eight-hour peak of 32 ppm, almost four times the Federal Standard. This value of 65 ppm was used in the Implementation Plan as the existing one-hour peak for midtown Manhattan.

C.2.(d) A supplementary analysis was made of one-hour readings obtained from the NYCDAR for the 110 East 45th Street Station for July 1972 to derive the average hourly concentrations shown in Figure C-1. These figures are based on data measured for weekdays only in the month of July. They show that the maximum hourly average occurs during the A.M. rush hours, from 8 to 9 A.M.; this value is 19.85 ppm. The maximum one-hour concentration for the entire month occurred during 9 to 10 A.M. on July 12th, a Wednesday. The 8 to 9 A.M. reading for that same day was 32 ppm. The average hourly concentration for weekday readings for the P.M. peak from 3 to 4 P.M. was 16.95 ppm and the maximum one-hourly reading was 25 ppm on Friday, July 21st. Peak-hour readings for weekends averaged 9.5 ppm for the 8 to 9 A.M. period and 9.2 ppm for the 3 to 4 P.M. period. Finally, during the time period when the VMF is expected to have maximum activity, 5-8 A.M., the average one-hour reading for the three hours were 8.8 ppm, 12.8 ppm, and 17.8 ppm, respectively. The maximum one-hour values observed were 15 ppm on July 18 for the 5 to 6 A.M. period and 17 ppm



ENVIRONMENTAL CONSULTANTS

PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc. Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

1972 AMBIENT CO CONCENTRATION* MIDTOWN MANHATTAN

* *Based on hourly concentration averages measured from 110 E 45th Street. Figures are based on data measured on all weekdays for the month of July 1972.*

Figure C–1

on July 21 and July 24 for the 6 to 7 A.M. period and 29 ppm on the 28th for the hour 7 to 8 A.M. These values do not represent background carbon monoxide concentrations alone, but represent background levels plus contributions of traffic on 45th Street and Lexington Avenue near the monitoring site. The one-hour CO standard of 35 ppm was reached at this site only once during the month, 9 to 10 A.M. on July 12, and was never exceeded.

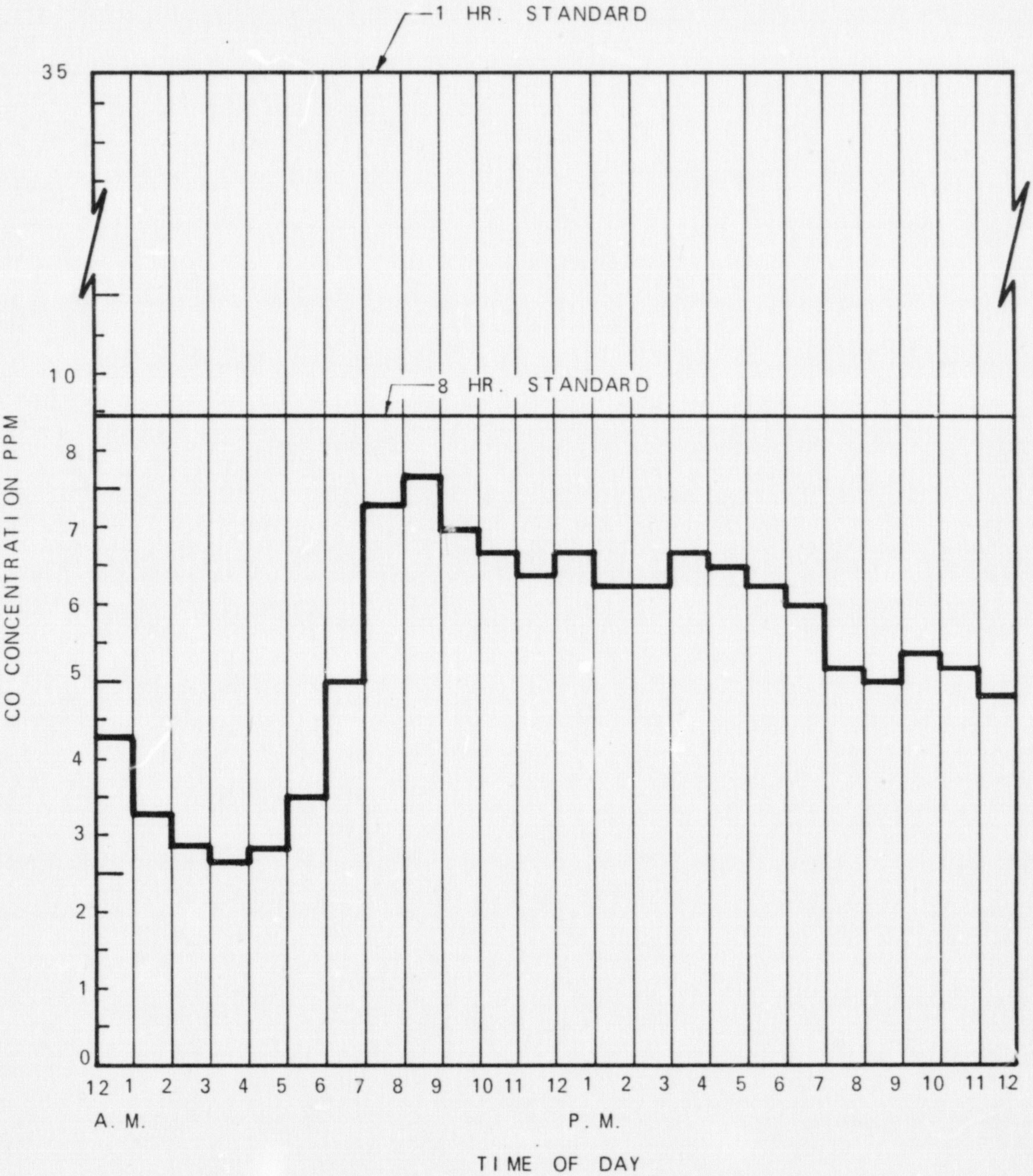
C.3 BACKGROUND AIR QUALITY FOR 1980

The determination of background air quality values for 1980 without the vehicle maintenance facility is based upon the New York City Implementation Plan and the roll back procedures determined in that Plan for each pollutant.

The major change in emissions from 1972 to 1976 (as shown in the Implementation Plan and extrapolated to 1980) will result from Federal Emission Standards for new motor vehicles. It is anticipated that CO concentrations will be below the federal eight-hour standard by 1976, with the exception of the one air quality station representative of the worst traffic conditions in the city. The Implementation Plan, however, goes on to state that the further reduction in emission factors after 1976 should bring all locations in New York City within the 9 ppm eight-hour standard by 1980.

Implementation Plan estimates were supplemented by looking at the projected emissions for a five-by-three block area for 1980 without the VMF. Reductions were found in calculated carbon monoxide emissions for the A.M. peak period of 61 percent and 66 percent for the P.M. peak from 1972 to 1980. If these reductions are applied to the 65 ppm 1972 one-hour maximum value for CO, shown in the Implementation Plan, a maximum peak hour CO value of 25 ppm for 1980 in the project area would result. Applied to July 1972 values, an average one-hour reading for the A.M. peak of approximately 8 ppm, and a maximum one-hour reading of under 15 ppm would be found. P.M. readings would be correspondingly reduced.

Since the monitor at the 45th Street site records traffic generated carbon monoxide concentrations as well as background, it would be extremely conservative to assume that 25 ppm or 15 ppm would be background CO levels for 1980. A reasonable, yet also conservative, procedure is to reduce the July 1972 average hourly concentrations by 61 percent. Figure C-2 depicts the resulting diurnal variation of projected CO background for 1980. The highest projected 1980 background carbon monoxide value is then 7.7 ppm and is expected to occur between 8 and 9 A.M. These levels are consistent with the Implementation Plan which states that CO concentrations will be below the eight-hour standard (9 ppm) in 1980.



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1980 PROJECTED BACKGROUND CO CONCENTRATION MIDTOWN MANHATTAN

Figure C-2

The three-hour maximum hydrocarbon value for 1970 was derived as 1.88 ppm. Again this value reflects both background and traffic generated concentrations. As an estimate of 1980 HC background, this level was compared to the ratio of the 1980 CO background to the 1972 highest observed concentration, i.e., 7.7/65. The resultant HC background is then 0.22 ppm as compared to the standard of 0.24 ppm.

C.4 TRAFFIC (LINE SOURCE) EMISSIONS

C.4.(a) Inputs to the line source emissions calculations can be broken down into two major areas: traffic parameters and emission factors.

Traffic emissions analyses were carried out for the same three-by-five block study area and street segments used for traffic analysis, which are illustrated in Appendix B, Figure B-1. Existing A.M. and P.M. peak-hour volumes and commercial vehicle components (Appendix B, Table B-2) were used to estimate 1972 and 1980 line source emissions without the proposed facility. Comparable post-development demands (Appendix B, Table B-6) were used to estimate 1980 line source emissions with the proposed VMF-apartment complex in operation.

The general concept of "city specific" emission factors is essential for accurate assessment of motor vehicle emissions. "City specific" emission factors take into account the various indices that differentiate emission characteristics of both local vehicle populations heavily biased toward newer vehicles. Likewise, high and low altitude cities have significantly different emission rates. For this reason, city specific emission factors from the New York City 1972 Air Quality Implementation Plan were used as a base for analysis. The values in the report were prepared according to EPA guidelines, and hence, were either entirely suitable, or easily modified to fit study needs. A total of ten separate sets of emissions factors (30 individual factors) were used in the study, as shown in Table C-1.

The following assumptions and emission rate modifications were made using the New York City data:

(1) Although there are currently plans to fit gasoline-powered trucks manufactured prior to 1970 with "RETROFIT", a pollutant-reducing conversion kit for otherwise uncontrolled vehicles, the effects on emissions were not considered in the study analysis. Since "RETROFIT" would apply only to New York City-based trucks 11 years or older, it would reduce HC and CO only by 50 percent. Therefore, any change in overall emissions totals would be relatively insignificant. Since pollutant

Table C-1

VEHICLE EMISSION RATES[1]
(Grams per Mile)

	Uncongested Flow[2]			Congested Flow[3]		
	HC	CO	NO_x	HC	CO	NO_x
Autos						
1970	14.8	114.0	6.4	18.2	160.9	6.4
1980	1.5	15.5	1.1	1.8	19.5	0.7
Gasoline Powered Trucks (over 3 Tons)						
1970	49.0	325.3	7.6	69.5	534.9	7.6
1980	31.2	176.6	6.5	42.8	290.4	6.4
Diesel Trucks and Buses						
1970 and 1980	20.0	35.4	67.5	21.6	38.9	72.8

(1) Based on tables in Appendix II of the Proposed Plan for Meeting Federal Air Quality Standards Relating to Carbon Monoxide, Hydrocarbons, Nitrogen Oxides and Oxidants in New York City, New York City Department of Air Resources, Bureau of Motor Vehicle Pollution Control, January 1972.

(2) Average speed of 12 mph for autos and gas powered trucks; 7 mph for diesel units.

(3) Average speed of 4 mph for gas powered trucks and diesel units; 7 mph for autos.

levels would be greater by disregarding "RETROFIT", there is also no chance of underestimating the "worst case" situation.

(2) Automobile emission rates were derived from the figures for three classes of taxis and for privately owned automobiles as listed in the New York City Implementation Plan. The single factor was calculated by weighting the number of vehicle miles traveled, also listed in the Plan, by each of the four sub-types and averaging the factors accordingly:

$$E = \frac{E_A M_A + E_{FM} M_{FM} + E_{NFM} M_{NFM} + E_{NM} M_{NM}}{M_A \quad M_{FM} + M_{NM}}$$

E = Derived emission factor

E_A = New York City private auto factor

E_{FM} = New York City fleet medallion taxi emission factor

E_{NFM} = New York City non-fleet medallion taxi emission factor

E_{NM} = New York City non-medallion taxi emission factor

M_A = 1980 mileage of private autos

M_{FM} = 1980 fleet medallion taxi mileage

N_{NFM} = 1980 non-fleet medallion taxi mileage

N_{FM} = 1980 non-medallion taxi mileage

(3) Diesel trucks and diesel buses are considered together since the two have nearly identical polluting characteristics. (The biggest difference is the reduction from 72.8 to 70.0 grams per mile of NO_x due to projected use of LSN injectors on buses in the future.)

(4) Emissions factors were provided for "uncongested" and "congested" flow conditions, with average recorded speeds as indicated in Table C-1. With a few exceptions, most street segments in the study area are relatively uncongested during peak hours. However, narrow roadway widths with parking and fixed time delays due to traffic signals produce relatively low operating speeds and extended periods of vehicle idling on many segments. Where available travel speed data from the West Side Highway studies (obtained from Parsons, Brinckerhoff, Quade and Douglas) or field observations reflected such conditions, the segment was considered as congested for the purpose of emissions analysis.

C.4.(b) Line Source Calculations based upon the appropriate emission factors and traffic parameters were carried out as follows:

$$E = \Sigma \quad (e) \quad (d) \quad (n)$$

E = the total emission for a single pollutant (grams/hour) for the specific peak hour and street segment being considered.

e = the applicable emission factor (grams/mile) for the specific pollutant (HC, CO, or NO_X) being considered, for the vehicle type (auto, truck, or diesel) under the specified traffic conditions (congested or uncongested). The various "e" factors used were outlined in the input discussion.

d = the distance, in miles, of the street segment being considered.

n = the number of vehicles per peak hour of the considered vehicle type.

The output of these calculations is total emissions, in grams, for A.M. and P.M. peak hours in 1970, and for A.M. and P.M. peak hours, with or without the VMF, in 1980. This is a total of six separate peak-hour emission rates. These data have been converted, to yield pollutant emission levels for 1972 and 1980 (again six peak-hour conditions), to grams, per meter, and for CO, to grams per meter-second to facilitate model calculations.

Results of calculations shown in Tables C-2 through C-5 indicate that the most severe emission loadings occur on the avenues, as might be expected Ninth Avenue is the line source with greatest emissions per unit time and length for peak morning traffic, followed by Tenth and Eighth Avenues. The larger traffic capacity and volumes of the avenues make the greater pollution loadings evident. The fact that Ninth Avenue is the major southbound route at that time when travel is southerly accounts for its morning predominance. Eighth and Tenth Avenues become secondary sources. Since it is the only two-way artery, Eleventh Avenue generates a marginally smaller amount of emissions but more than any of the east-west street segments.

Of the east-west streets, 30th Street is the largest line source in morning peak flows, while 30th and 29th Streets are equally important generators in the evening peak. The reduced capacity of the remaining streets together with reduced loading and congestion has made the other streets relatively insignificant line sources.

Table C-2

COMPARATIVE CO EMISSIONS BY STREET
Units: grams/hour

Street Segment	AM Peaks 1972	AM Peaks 1980 Without VMF	AM Peaks 1980 With VMF	PM Peaks 1972	PM Peaks 1980 Without VMF	PM Peaks 1980 With VMF
A	55886	17606	17606	72276	19361	19361
B	55665	21769	23128	30075	11509	11880
C	19129	7483	7815	9790	3432	3503
D	17009	6652	6499	13279	4747	4882
E	35645	16934	17333	41996	15241	16094
F	7401	3458	3504	8729	3285	3206
G	13383	5991	2976	17621	6346	5991
H	67341	22201	20966	45107	16244	16607
I	13486	6006	6006	10752	3902	3902
J	4532	1977	1736	10421	3312	3197
K	27728	12351	12352	13679	4348	4347
L	31468	14013	14014	16646	5290	290
M	7693	3727	1402	9610	4469	4023
N	12791	4507	123	25578	9947	8690
O	20014	7099	3658	31444	12212	9947
P	11313	5021	5020	5366	1953	2213
Q	10591	4399	4600	6621	2122	2400
R	14599	5143	5583	11523	3599	3711
S	2286	1023	615	2742	1119	1119
T	32226	11501	11501	25120	7903	7903
U	20157	6241	16588	40096	12523	13389
TOTAL:	480343	185102	183015	448471	152864	151655
% REDUCTION:	--	61%	62%	-	66%	66%

Table C-3

COMPARATIVE CO EMISSIONS BY STREET
Units: mg/m sec

Street Segment	AM Peaks 1972	AM Peaks 1980 Without VMF	AM Peaks 1980 With VMF	PM Peaks 1972	PM Peaks 1980 Without VMF	PM Peaks 1980 With VMF
A	40	13	13	52	14	14
B	66	26	27	36	14	14
C	70	27	28	36	13	13
D	62	24	24	48	17	18
E	42	20	21	50	18	19
F	27	12	13	32	12	12
G	49	22	11	64	23	22
H	48	16	15	32	12	12
I	13	5	6	10	4	4
J	11	5	4	26	8	8
K	47	21	21	23	7	7
L	31	14	14	16	5	5
M	7	3	1	10	4	4
N	12	4	0	25	10	9
O	20	7	4	31	13	10
P	11	5	5	5	2	2
Q	10	4	5	7	2	2
R	13	4	5	10	3	3
S	2	1	6	3	1	1
T	11	4	4	8	3	2
U	6	2	6	13	4	4

Table C-4 .

COMPARATIVE NO_X EMISSIONS BY STREET
Units: grams/hour

Street Segment	AM Peaks 1972	AM Peaks 1980 Without VMF	AM Peaks 1980 With VMF	PM Peaks 1972	PM Peaks 1980 Without VMF	PM Peaks 1980 With VMF
A	2171	872	872	3052	1118	1118
B	2042	1063	1315	1650	902	1071
C	801	365	380	570	295	348
D	623	324	369	524	257	309
E	1366	959	1072	1943	1111	1320
F	430	307	340	590	349	400
G	469	185	283	755	402	438
H	2104	1314	1249	1931	1030	1057
I	436	254	254	497	284	284
J	224	135	121	443	202	195
K	893	519	526	582	266	266
L	1018	592	592	708	324	324
M	191	111	63	269	154	144
N	423	163	235	858	405	636
O	720	315	144	1055	497	405
P	334	181	180	254	148	167
Q	308	143	140	306	154	158
R	483	185	197	405	135	139
S	68	40	37	131	70	70
T	1066	398	398	898	315	315
U	635	162	386	1410	472	495
TOTAL:	16705	8587	9153	18831	8890	9659
% REDUCTION:	-	49%	45%	-	53%	49%

Table C-5

COMPARATIVE HC EMISSIONS BY STREET
Units: grams/hour

Street Segment	AM Peaks 1972	AM Peaks 1980 Without VMF	AM Peaks 1980 With VMF	PM Peaks 1972	PM Peaks 1980 Without VMF	PM Peaks 1980 With VMF
A	6000	2428	2429	7664	2595	2595
B	6138	3135	3374	3822	1935	2032
C	2110	1077	1124	1233	568	591
D	1875	958	947	1452	678	707
E	4076	2545	2627	4669	2244	2405
F	981	618	633	1121	535	561
G	1500	882	530	1943	921	882
H	7084	3291	3112	4968	2355	2408
I	1506	875	875	1195	574	574
J	584	339	299	1128	466	450
K	3095	1799	1802	1480	612	612
L	3514	2042	2042	1802	744	744
M	859	540	250	1071	646	585
N	1377	624	70	2799	1414	1302
O	2170	996	495	3439	1735	1414
P	1255	724	724	597	289	328
Q	1160	624	650	723	305	338
R	1572	712	771	1226	486	500
S	254	147	104	347	187	188
T	3515	1588	1588	2679	1073	1073
U	2121	824	2361	4266	1692	1804
TOTAL:	52746	26768	26807	49624	22054	22093
% REDUCTION:	-	49%	49%	-	55%	55%

C.5 TRAFFIC EMISSIONS FOR 31ST, 33RD, AND 34TH STREETS

Similar line source emissions were calculated for the three streets north of the study area assuming a diversion of 400 vehicles to these streets during the noontime hours. As well as an increase in traffic on these streets, the closing of 29th Street will increase congestion (decrease average vehicle speed) on 31st and 33rd Streets and the westbound lane of 34th Street under prevailing parking conditions. If parking is restricted along at least one side of 31st and 33rd Streets, the additional westbound traffic can be accommodated under operating conditions equal to or improved over present conditions (i.e., uncongested emission rates).

The results of these calculations are shown in Table C-6.

Changes in air quality with the diverted traffic under both prevailing and restricted parking conditions were calculated under adverse meteorological assumptions. Table C-7 shows the calculation methodology and example of resulting CO concentration.

Also shown in Table C-7 are calculations assuming the four "moving" traffic lanes on 34th Street are filled with stalled vehicles. Such conditions reflect the worst case that could occur either with or without the proposed VMF as a result of one or more factors, such as blockage due to an accident or unforeseen increases due to other development projects or circulation changes in the area. The number of vehicles stalled in each block were calculated on the basis of average vehicle lengths plus an average bumper-to-bumper spacing of approximately 2.5 feet in stalled traffic. Average total vehicle spacings used were 21 feet for autos, 28 feet for heavy-duty gas-powered trucks and 48 feet for diesel units (with trailer).

C.6 DAILY POSTAL VEHICLE EMISSIONS

As a result of the construction of the VMF, total daily CO emissions by postal vehicles are substantially reduced. This is a direct result of the decrease in the mileage of 5-ton trucks and diesels. There will be an increase in the mileage of light-duty vehicles. Table C-8 presents the results.

C.7 VMF EXHAUST (POINT SOURCE) EMISSIONS

The proposed VMF exhaust system was analyzed with respect to its impact on other receptors in the study area. The entire building will be ventilated with exhaust stacks on top of the air rights structure, approximately 320 feet above road level. The pollutant emissions in the building exhaust will arise from three principal sources:

Table C-6

LINE SOURCE TRAFFIC EMISSIONS - 31st, 33rd, 34th STREETS[1]
(grams/hour)

Street	Travel Dir.	Carbon Monoxide (CO): Present Traffic Volume	Carbon Monoxide (CO): With VMF (Prevailing Parking)	Carbon Monoxide (CO): With VMF (Restricted Parking)	Hydrocarbons (HC): Present Traffic Volume	Hydrocarbons (HC): With VMF (Prevailing Parking)	Hydrocarbons (HC): With VMF (Restricted Parking)
34th - Eighth to Ninth[2]	WB	4012[U]	7236[C]	4278[U]	659[U]	1018[C]	697[U]
	EB	8116[C]	6356[C]	6356[C]	1148[C]	889[C]	889[C]
	Total	12128	13592	10634	1807	1907	1586
			(+12)	(-12)		(+6)	(-12)
34th- Ninth to Dyer[3]	WB	2006[U]	3618[C]	2139[U]	330[U]	509[C]	349[U]
	EB	2614[U]	1945[U]	1945[U]	430[U]	335[U]	335[U]
	Total	4620	5563	4084	760	844	684
			(+20)	(-12)		(+11)	(-10)
33rd - Eighth to Tenth[4]	WB	6418[U]	11664[C]	8167[U]	1055[U]	1637[C]	1321[U]
			(+82)	(+27)		(+55)	(+25)
31st - Eighth to Tenth[4]	WB	8023[U]	13424[C]	8754[U]	1318[U]	1896[C]	1434[U]
			(+67)	(+9)		(+44)	(+9)
Totals		31189	44243	31639	4940	6284	5025
			(+42)	(+1)		(+27)	(+2)

1 - Projected emissions based on 1980 Emission Rates
2 - One block in length
3 - One-half block in length
4 - Two blocks in length
U - Uncongested flow
C - Congested flow
(+00) Percent change from projected emissions based on present volumes

Table C-7

ANALYSIS OF AIR QUALITY ON 31ST, 33RD, AND 34TH STREETS

1. Co concentrations resulting from average noontime traffic, including the diverted vehicles.

   a. Emissions - see Table C-6.

   b. Meteorology: winds parallel to street at 1 m/sec: neutral stability; California dispersion parameters.*

   c. Method of calculation - integrated area source.**

$$C = \frac{0.8\ Q_A}{\bar{\mu} a\ (1-b)} [X_2^{(1-b)} - X_1^{(1-b)}]$$

where C is concentration

Q_A is area source = Q/(length x width)

a = 4.9 neutral stability

b = 0.256 neutral stability

X_2 is length of area source

X_1 is distance from end of area source at which C is calculated

   d. Example - 34th Street between Eighth and Ninth Avenues

Q_{A_1} = area source without diverted traffic

Q_{A_2} = area source with diverted traffic and prevailing parking conditions

Q_{A_3} = area source with diverted traffic and restricted parking conditions

Q_{A_1} = (12128 g/hour)/244 m x 30.5 m) (3600 sec/hour) = 0.452 mg/m^2/sec.

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* Beaton, J.S. et al, 1972: Mathematical Approach to Estimating Highway Impact on Air Quality, Report No. FHWA-RD-72-37, Vol. 5, FHWA.

** Gifford, F.A. and S.R. Hanna, 1971: Urban Air Pollution Modeling. Proc. of the Second International Air Pollution Conference. IUAPPA, New York, Academic Press.

Table C-7 (Cont'd)

Q_{A_2} = 0.507 mg/m^2/sec.

Q_{A_3} = 0.396 mg/m^2/sec.

X_2 = 244 m; X_1 = 15 m

$$C_1 = \frac{0.452 \times 0.8}{1 \times 4\ (0.744)} \left[244^{(.744)} - 15^{(.744)}\right] = 6.4 \text{ mg/m}^3$$

= 5.5 ppm

C_2 = 6.1 ppm

C_3 = 4.8 ppm

2. Stalled traffic conditions

a. Traffic data: mix of 75% automobiles, 23% gas trucks, 2% diesel.

b. CO emission factors: light duty - 136.5g 1 hr.
heavy duty - 1161.6g 1 hr.
diesel - 155.6g 1 hr.

c. Emissions: four lanes filled with vehicles
total emissions are 13284 mg/sec.

d. Identical meteorology.

e. Sample calculation:

Q_A = 13284/(30.5 x 244) = 1.79 mg/m^2/sec.

$$C = \frac{1.79\ (0.8)}{4\ (.744)} \left[244^{(.744)} - 15^{(.744)}\right] = 25.1 \text{ mg/m}^3$$

= 22 ppm

Adding background gives

C = 22 + 6.5 = 28.5 ppm

Table C-8

DAILY POSTAL VEHICLE CO EMISSIONS (grams/day)

Vehicle Type	Miles(1)		Emissions(2)	
	With VMF	Without VMF	With VMF	Without VMF
light duty	2100	1700	32550	26350
heavy duty	470	710	83002	125386
diesel	950	1010	33630	35754
TOTALS	3520	3420	149182	187490

(1) Calculated from mileage up to first (last) stop after leaving (before entering) VMF. See Table B-5.

(2) Uncongested travel.

(1) Emissions from the large number of vehicles preparing to leave the VMF at approximately 5 to 8 A.M. each day. During this time a large number of vehicles may be operating within the structure awaiting the departure time.

(2) Vehicles maneuvering within the building during any hour of the day.

(3) Vehicles being serviced within the facility. For vehicles being serviced there will be flexible hose connections which will carry tailpipe exhaust directly into exhaust vents.

The building exhaust system will be equipped with automatic controls, with full ventilating capacity to be reached whenever a specified carbon monoxide level (e.g., 100 ppm) is reached at any monitoring point within the building. This high concentration level should occur only during the 5 to 8 A.M. time period when a large number of vehicles will be preparing to leave the building.

The design of the VMF ventilation system is such that the maximum instantaneous concentration of CO that can be achieved at critical locations in the building is 200 ppm. A realistic maximum concentration of CO in the ventilation effluent, however, is the 100 ppm maximum hour design level.

For calculating the impact from the VMF structure as a point source, a concentration of 100 ppm was assumed as the maximum exhaust flow of any one floor (80,000 cfm) to be representative of the "worst case" of pollutant discharge from the building. The calculation of CO emissions was as follows:

> 100 ppm CO x (80 x 10^3 cfm air) x 0.08 pcf x 454 g/p = 291 grams/minute/floor of CO, or 1453 grams/minute maximum or about 24 grams/second CO for all five floors.

Estimates of the impact upon several selected receptors in the study were carried out using two different methods of calculation. First, expected carbon monoxide concentrations at each of the receptors were calculated using a gaussian plume equation. These calculations were carried out for a zero plume rise case (i.e., the case in which the exhaust vents discharged horizontally into the atmosphere). The vehicle maintenance facility together with the planned air rights structure will be the tallest facility in the study area and the gaussian plume analysis indicated no impact on the external individual receptors studied.

Therefore, the case where the effluent from the exhaust vents becomes trapped in a wake flow zone around the VMF structure was also considered. Since the tower extends to 320 feet above grade, a

fully developed wake zone will be sufficiently large to disperse the effluent such that concentrations at the external receptors are small. It was not possible to precisely estimate the concentrations, however. The estimates given, therefore, are the maximum expected.

A narrow plume emanating from one tower could intersect the upper floors of the other tower under certain meteorological conditions. With horizontal exhaust venting in the direction of the opposite apartment tower, resulting concentrations could reach 47 ppm (during the 5-8 A.M. period) if the ventilated air contained the realistic maximum CO concentration of 100 ppm. The joint relative frequency (or probability) of the meteorology and emissions was calculated to assess the likelihood of occurrence of these high concentrations. The relative frequency of 0.003 of neutral atmospheric stability and lowest wind speed class and wind direction from ENE or WNW, the orientation of the VMF site, was calculated from the Laguardia wind rose (Table C-16). The product of this number and the number of hours in which the high emissions could theoretically occur (780 hours/year) represents the number of hours in which meteorological conditions would combine with high emissions to produce concentrations of CO in excess of ambient standards, i.e., approximately 2.5 hours/year. However, computation of CO concentrations inside the garage (see Section C-10) indicates the unlikelihood of attaining 100 ppm in the ventilation system. Thus, the contravention of the one-hour CO standard is not likely to occur. The problem can be avoided completely by vertical rather than horizontal discharge, by raising the height of exhaust stacks to 36 feet above the roof of each tower, or by venting horizontally in directions away from the opposite apartment tower. Calculations indicate that this horizontal venting arrangement would not exceed 33 ppm CO under the same combined meteorological and exhaust emissions conditions.

The data used for the calculations, the assumptions made, and the method of computation of the carbon monoxide concentrations expected at each of the receptor locations are identified in Table C-9. The results are summarized in Table C-10.

C.8 29TH STREET WORST CASE CARBON MONOXIDE CONCENTRATIONS

Traffic emissions on any of the streets surrounding the VMF site could adversely affect the air quality on the recreation desk (VMF air intake) and in the housing units constructed on top of the VMF. However, since Morgan Station and the VMF will form a street canyon of 50 to 60 feet in depth, the highest concentrations are expected to occur on 29th Street. During the P.M. rush hour two lanes of 29th Street will be opened to general traffic; and one lane will be used exclusively for postal vehicles. If an accident should occur

Table C-9

DATA AND METHODS USED IN ESTIMATING
IMPACT OF VMF EXHAUST VENT EMISSIONS

1. <u>Source Characteristics</u>

   a. Volume flow rate from exhaust vent system: 400,000 cfm.

   b. Cross-sectional area of vent surface: 320 ft^2 = 29.7 m^2.

   c. Velocity of exhaust gases at exit: 6.35 m/sec.

   d. Vents located on top of air rights buildings; elevation: 320 ft - 97 m above grade.

   e. Horizontal discharge of exhaust fumes.

   f. CO is pollutant of interest.

   g. Effluent assumed to contain 100 ppm CO, likely only during 5 to 8 A.M. period when most vehicles are preparing to leave the facility.

2. <u>Meteorological Conditions for Worst Case Analysis</u>

   a. Wind speed at building top: 1 m/sec.

   b. Wind direction along direct line from the vents to each receptor considered, i.e., centerline concentrations are calculated.

   c. For gaussian plume calculation, neutral stability is assumed.

   d. For gaussian plume calculations, McElroy - Pooler dispersion parameters for urban areas are used. (cf., Ref 1 and 2).

3. <u>Receptors Considered</u>

   a. Recreation area on the roof of the VMF.

   b. Air intake vents for the VMF.

   c. Morgan Station roof area.

   d. Penn Station South Apartment building at the SE corner of Ninth Avenue and 29th Street.

   e. French Hospital, E of VMF on 29th Street

*Pooler, F., 1966: A Tracer Study of Dispersion Over a City. <u>J. Air Poll. Contr. Assoc.</u>, 16, 12, 677-681; and Calder, K.L. 1971: A Climatological Model for Multiple Source Urban Air Pollution. <u>Proceedings of the Second Meeting of the Expert Panel on Air Pollution Modeling</u>, NATO Committee on the Challenges of Modern Society.

f. Health clinic and public school in blocks south of the VMF.

g. Upper floors of opposite tower.

h. Other buildings in the study area.

4. Methods of Calculation

a. Gaussian plume projections; centerline concentrations; no plume rise; and McElroy - Pooler dispersion parameters.

b. Wake zone mixing: assumes effluent is trapped in the turbulent wake zone around the VMF and air rights structure. Dilution of initial effluent is calculated by estimating the minimum cross-section area of the wake zone containing the plume, at the downwind location of the receptor.

5. Estimate of Wake Zone Cross-Sectional Area for Each Receptor

a. Recreation area on roof of the VMF: estimated area = $(60\ ft)^2 \times 2 = 7200\ ft^2$. Based on 60 ft width of separation between the VMF and Morgan Station, with separate wake zones for each of the two vent clusters.

b. Air intake vents for VMF: same as for recreation area $= 7200\ ft^2$.

c. Morgan Station roof area: same as for recreation area $= 7200\ ft^2$.

d. Penn Station South Apartment Building: estimated area $= (130\ ft)^2 \times (1/2 \times 130\ ft) = 8,450\ ft^2$. Based on width of VMF multiplied by 1/2 the width of the VMF (to represent vertical mixing).

e. French Hospital: estimated area = (250 ft) x (6 ft) = 15,000 ft. Based on height of VMF structure (250 ft) times the width of 29th Street (60 feet).

f. Health clinic and public school south of VMF: estimated area $= (250\ ft) \times (60\ ft) = 15,000\ ft^2$. Based on height of VMF structure (250 ft) x width of 28th Street (60 ft).

g. Upper floors of tower from which effluent discharged: assumed effluents are trapped in a box whose sides are 1.5 x length of tower, i.e., 167 ft.

h. Other buildings in the study area: estimated area at least is large as for the hospital, school and clinic $= 15,000\ ft^2$.

Table C-10

RESULTS OF WORST CASE ANALYSIS OF CO CONCENTRATIONS DUE TO VMF VENT EXHAUST (Estimates based on assumption of 100 ppm in the vent exhaust, and receptors directly downwind from the vents)

Receptor	Gaussian Plume Estimates	Wake Zone Estimates
a. Recreation area	Negligible	5 ppm
b. Air intake vents for VMF	Negligible	5 ppm
c. Morgan Station roof	Negligible	5 ppm
d. Apartment building	Negligible	4 ppm
e. French Hospital	Negligible	2 ppm
f. Clinic & school	Negligible	2 ppm
g. Upper floors of tower	47 ppm	8 ppm
h. Other sites	Negligible	< 2 ppm

on an adjoining street or if the traffic volume were so large as to cause fully congested conditions, it is expected that the street may be full of vehicles during this rush period.

During other times of the day the only traffic on the street will be those vehicles entering or leaving the facility and trucks entering or leaving the loading docks of Morgan Station. The proposed system of postal vehicle scheduling and circulation, including two-directional access, will obviate the potential for fully congested conditions during these periods.

For the "worst case" analysis, a numerical advection diffusion simulation model was used to calculate the spatial distribution of CO concentrations assuming a helical circulation exists in the canyon between the two structures. The assumptions used for this case are described in Table C-11. Figure C-3 depicts the worst case CO concentrations along the 29th Street face of the VMF; and Figure C-4 illustrates the distribution of carbon monoxide throughout a cross section cut through 29th Street and the VMF.

The results show that relatively clean air will ventilate the VMF and that CO concentrations on 29th Street will be below the one-hour standard of 35 ppm.

C.9 ANALYSIS OF WORST CASE CO CONCENTRATIONS OUTSIDE AND INSIDE THE TOWER HOUSING UNITS

The method used to project CO concentrations outside and inside the housing unit is a combination of the numerical model predictions and the results of the "Indoor - Outdoor Carbon Monoxide Pollution Study."* The numerical model prediction of CO values at 30 feet at the 29th Street face of the VMF were calculated. This concentration was then used to generate CO concentrations with height outside and inside the tower assuming the observed vertical distribution found in the GE study.*

Although the VMF towers will have about the same physical characteristics as the Washington Bridge Apartments, this approach is essentially conservative since the towers will not be located above a 12 lane expressway nor will they form a street canyon with surrounding buildings. Table C-12 summarizes the results.

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* General Electric Company, 1972: Indoor-Outdoor Carbon Monoxide Pollution Study, EPA-R4-73-020, Philadelphia, Pennsylvania.

Table C-11

ANALYSIS OF 29TH STREET WORST CASE EMISSIONS

Assumptions for Worst Case

1. P.M. rush hour with street open.

2. Geometry: 29th Street - 800 ft (244 m) long, 60 ft (18.3 m) wide; VMF - 16 m high; Morgan - 40 m high.

3. Traffic data: public lanes - mix of 73% automobiles, 25% gas trucks, 2% diesel; postal lane - 61% light duty vehicles, 26% heavy duty vehicles, 13% diesel.

4. Average vehicle spacing: 21 ft automobile, 28 ft heavy duty vehicle, 48 ft diesel.

5. Traffic condition: public lanes completely filled with vehicles; postal lane filled with 13 vehicles.

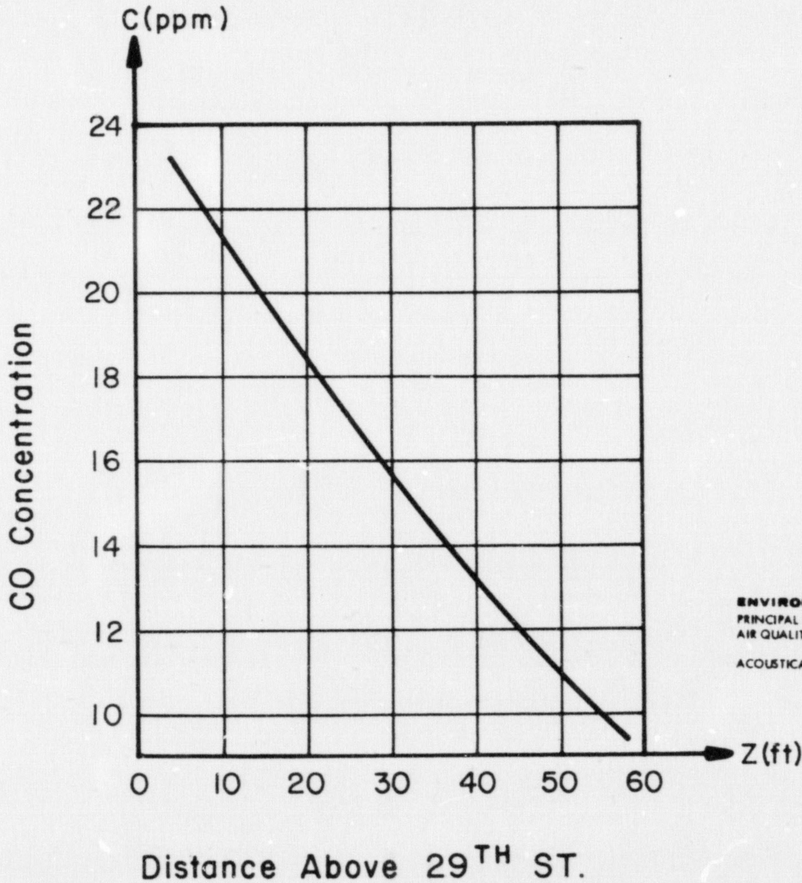
6. CO emission factors: light duty - 136.5 g/hr, heavy duty - 1161.6 g/hr, diesel - 155.6 g/hr.

7. Meteorology: helical circulation in street canyon assuming 1 m/sec wind on top of Morgan Station; neutral atmospheric stability.

8. Time period: persistence for one-hour is possible; 35 ppm one-hour standard applies.

9. Number of vehicles: public lane - 28 cars, 7 trucks, 0 diesel; postal lane - 8 light duty vehicles, 4 heavy duty vehicles, 1 diesel.

10. Emissions: public lane - 3321 mg/sec; postal lane - 1680; total - 8322 mg/sec.



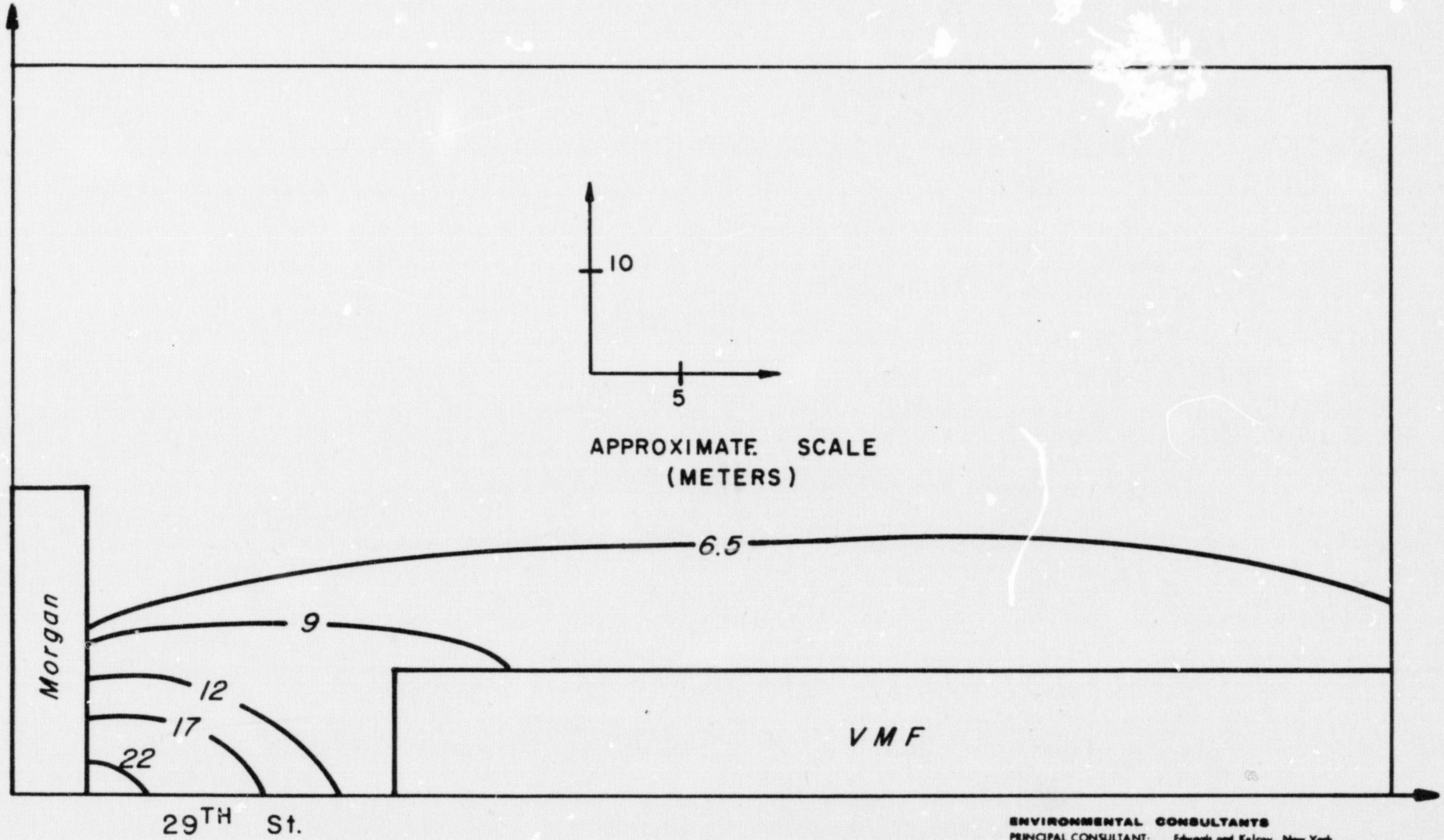
ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

ESTIMATED CO CONCENTRATIONS*

29th STREET FACE OF VMF

* Worst Case 1-Hour CO Concentrations Including estimated 6.5 PPM background

Figure C — 3



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PROJECTED CO CONCENTRATIONS*
ON 29th STREET and VMF ROOF

* 1980 Worst Case 1-Hour CO Concentration (PPM)

Figure C—4

Table C-12

WORST CASE CO CONCENTRATIONS OUTSIDE AND INSIDE TOWER HOUSING UNIT

Height (ft) above grade	Percent decrease[1] from lowest level	CO Concentration (ppm)[2] Outside	Inside
30	0	16[3]	—[4]
50	6	15	—
150	12.5	14	15
230	50	8	10
320	44	9	14

(1) Percent decrease of outside values

(2) Includes 5.8 ppm background

(3) Model prediction

(4) Base of tower is 50 - 60 feet above grade

C.10 CALCULATION OF CO CONCENTRATIONS INSIDE VMF

The calculation of CO concentrations inside the garage is based on 1970 emission factors and the hours when vehicle movements are greatest. Table C-13 depicts the assumptions and methods of calculation.

The results indicate that the highest expected one-hour CO level will be 27 ppm which is well below the 35 ppm NIOSH eight-hour standard. It also indicates that attaining CO values of 100 ppm in the ventilation system is unlikely.

C.11 VMF EXHAUST EMISSIONS PRIOR TO CONSTRUCTION OF HOUSING TOWERS

Prior to the completion of the housing towers the VMF exhaust will be evacuated from the roof of the VMF. The exhaust vents are to be covered by a sheet metal or other material tunnel which will direct the effluent discharge away from the construction activity toward the center of the roof. Figure C-5 depicts the temporary ventilation structure. If the tunnel extends to less than 250 feet from the center of the roof, the impact of the VMF exhaust on the air intake will be acceptable.

Carbon monoxide concentrations at critical receptors are again calculated either assuming a gaussian plume calculation or assuming turbulent downwash. Table C-14 illustrates the assumptions and methods of computation. The results are presented in Table C-15. As the table indicates, the greatest impact is the deterioration of air quality on 29th Street. This would occur only during the 5-8 A.M. peak hours and when the winds are light and from a SSW quadrant. Normal VMF activities would produce concentrations less than 25 percent of the worst case levels. Background values have not been included in the calculations.

C.12 DESCRIPTION OF NUMERICAL SIMULATION MODEL

C.12(a) The Tracer Equation. The advection and diffusion of a pollutant are governed by the tracer equation. The two-dimensional equation, used in this study, describing the change of concentrations resulting from horizontal advection, vertical advection, vertical diffusion, and source emissions, is:

$$\frac{\partial \chi}{\partial t} = -U \frac{\partial \chi}{\partial x} - W \frac{\partial \chi}{\partial z} + \frac{\partial}{\partial z} \left(K \frac{\partial \chi}{\partial z}\right) + Q$$

Table C-13

ANALYSIS OF AIR QUALITY INSIDE THE VMF

1. Assumption

   a. Time period: 6 - 7 A.M. peak VMF movements.

   b. Traffic data: 177 light duty vehicles, 30 heavy duty vehicles, 16 diesels.

   c. Distance traveled: from the furthest point on Level + 58 to the entrance point at Level + 18; this distance is 0.34 mile.

   d. Ventilation: 400,000 cfm.

   e. Emission factors (1970): light duty - 160.9 g/mi, heavy duty - 534.9 g/mi, diesel - 38.9 g/mi.

   f. Air quality of air entering VMF: 7.5 ppm carbon monoxide.

2. Calculations

   a. Total emission rate:

   $E = \Sigma edn$ where

   e = emission factor for a particular type vehicle

   d = 0.34 mi

   n = number of particular type vehicle

   Thus,

$$E = (160.9 \times 0.34 \times 177 + 534.9 \times 0.34 \times 30 + 38.9 \times 0.34 \times 16) / 3600 \text{ (sec/hr)}$$

$$= 4.28 \text{ g/sec.}$$

   b. CO concentration

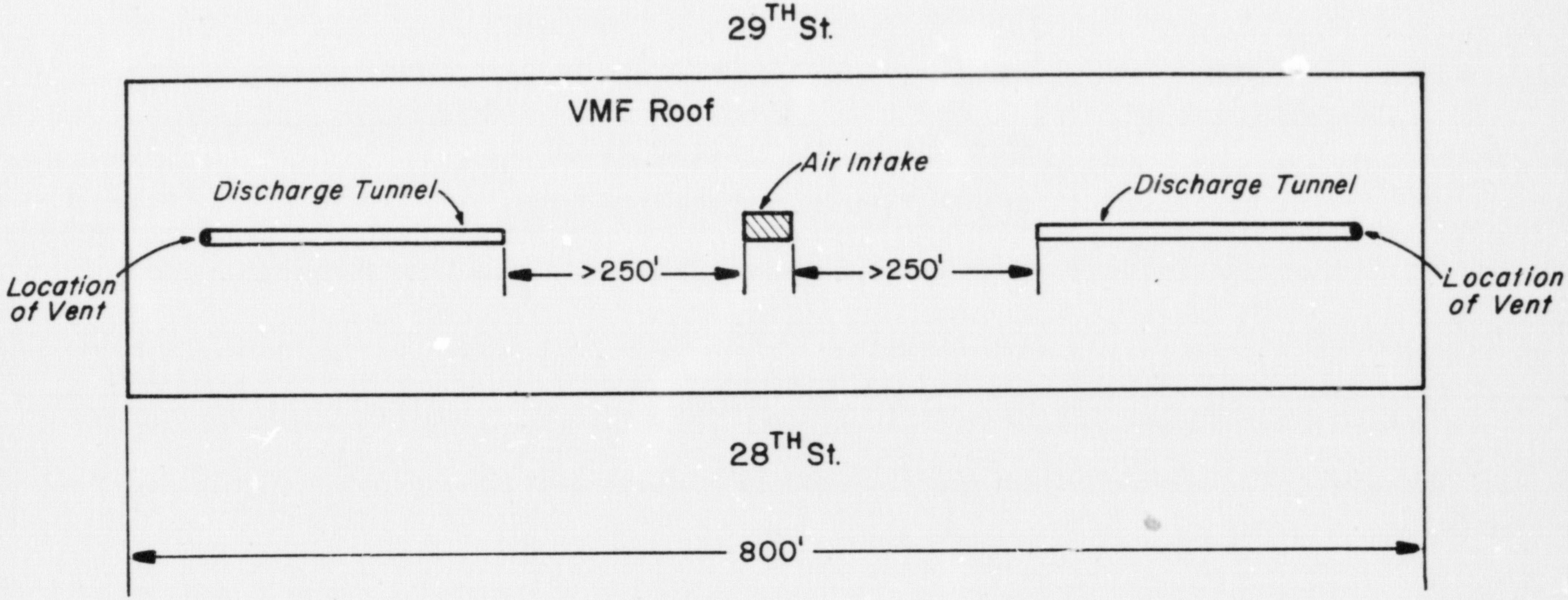
$$C = E \text{ (g/sec)} \times (400{,}000)^{-1} \text{ (min/ft}^3\text{)} \times 60 \text{ sec/min} \times 1 \text{ ft}^3 / (.3048\text{m})^3 \times 1000 \text{ mg/g}$$

$$= 22.7 \text{ mg/m}^3 = 19.6 \text{ ppm}$$

   adding background gives

$$C = 19.6 + 7.5 = 27.1 \text{ ppm}$$

6926



Schematic of VMF Exhaust System During Construction of Housing

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PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure C — 5

Table C-14

ANALYSIS OF THE IMPACT OF THE VMF EXHAUST

EMISSIONS FROM POINTS ON THE VMF ROOF

1. Source Characteristics

   a. Vents located on VMF roof; funneled away from tower construction toward center of building.

   b. Others - same as Table C-8.

2. Meteorological Conditions

   a. For gaussian plume calculation, McElroy - Pooler dispersion* parameters for urban areas are used, i.e., $\sigma_z = ax^b + c + \sigma_0$ where σ_0 = 30 m for sources less than 20 meters in height.

   b. Others - same as Table C-8.

3. Methods of Calculation

   a. Gaussian plume projections; centerline concentrations; zero plume rise; and McElroy - Pooler dispersion parameters.

   b. Wake zone mixing: assumes effluent is trapped in the turbulent wake around the VMF. Concentration is calculated by assuming effluent is thoroughly mixed throughout turbulent wake volume.

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*Calder, K.L., 1971; A Climatological Model for Multiple Source Urban Air Pollution. Proceedings of the Second Meeting of the Expert Panel on Air Pollution Modeling, NATO Committee on the Challenges of Modern Society.

Table C-15

RESULTS OF WORST CASE ANALYSIS OF CO
CONCENTRATIONS DUE TO VMF VENT
EXHAUST DISCHARGED FROM VMF ROOF

Receptor	Concentration[1]
Air intake vents for VMF	6 ppm
29th Street	11.5 ppm
28th Street	5 ppm
Morgan Station roof	4 ppm
Apartment building	2.5 ppm
French Hospital	2 ppm
Clinic & school	5 ppm
Other sites	< 2 ppm

(1)Not including background

where

X is the pollutant concentration

U is the horizontal wind

W is the vertical wind

K is the turbulent diffusivity

Q is the source emission

To simulate pollutant dispersion across the downwind of a highway, a vertical cross sectional region enclosing the highway is divided into a number of grid elements. If the horizontal dimensions of the grid elements are set equal to the width of a road lane and the vertical dimensions equal to a mean initial mixing depth for the aerodynamic wake region of the vehicles, traffic in different lanes can then be represented by volume source emission rates in the corresponding grid elements.

C.12.(b) The Computational Procedure. The model simulates the advection and diffusion of emissions from shallow-volume sources with a forward time step, finite difference algorithm. A major feature of the procedure is the suppression of "pseudo-diffusive" errors associated with conventional finite difference approximations to advective transport. This provides an important improvement in the accuracy of simulating pollutant transport numerically where spatial and time variations of winds and diffusivities are of major importance, e.g., near highways.

The material-conserving computation procedure involves iterations of the zeroth, first and second moments of the concentration distribution within each grid element with time. The scheme fundamentally conserves pollutant material and descriptive statistics of the material distribution. The theoretical basis for the model is described in Egan and Mahoney.*

Procedurally, the model first calculates the wind and diffusivity fields based on simple power law relationships and fundamental conservation equations of fluid mechanics. The model then applies these fields to the numerical simulation procedure defined by the finite-differenced tracer equation and the two-dimensional grid system.

C.12.(c) Horizontal and Vertical Winds. Both the horizontal, U(x,z), and vertical, W(x,z), winds are calculated on the basis of conservation

---

* Egan, B.A. and J.R. Mahoney, 1971: Numerical Modeling of Advection and Diffusion.

of mass and according to the "topography" in the grid system. A simple power law expression for U is assumed at the left boundary, i.e., $U(0,z) = U_1 \ (z/z_1)^\alpha$

where

α depends on atmospheric stability

U_1 is a measured wind speed

and

z_1 is the height at which U_1 is measured.

For computational purposes the wind direction is always perpendicular to the highway. To simulate winds at small azimuth angles (θ) from the normal, the model reduces the wind speed in the advection terms by a factor cos θ, simulating an increase in travel time of pollutants to corresponding positions normal to the roadway.

The wind fields for different roadway configurations - at-grade, elevated, and depressed - are calculated by assuming that various horizontal velocity profile modifications will result from the presence of obstacles and by requiring that the wind fields that result satisfy conservation of mass at each grid element. Vertical winds are calculated assuming simple continuity, i.e.,

$$\frac{\partial U}{\partial x} + \frac{\partial W}{\partial z} = 0,$$

with an upper boundary condition that requires W to vanish at the top of the system. A relaxation scheme was developed to insure mass conservation after calculation of the vertical velocities.

C.12.(d) Turbulent Diffusivities. The estimation of turbulent diffusion rates near the ground as a function of atmospheric conditions, height and local topographic features remains a major research topic in micrometeorology. The diffusivities used in the model are based on empirical data and results inferred from the measurement program.*

Over level terrain the diffusion coefficients, K(x,z), are considered to be a power function of height of the form

$$K(z) = A(z/z_1)^B$$

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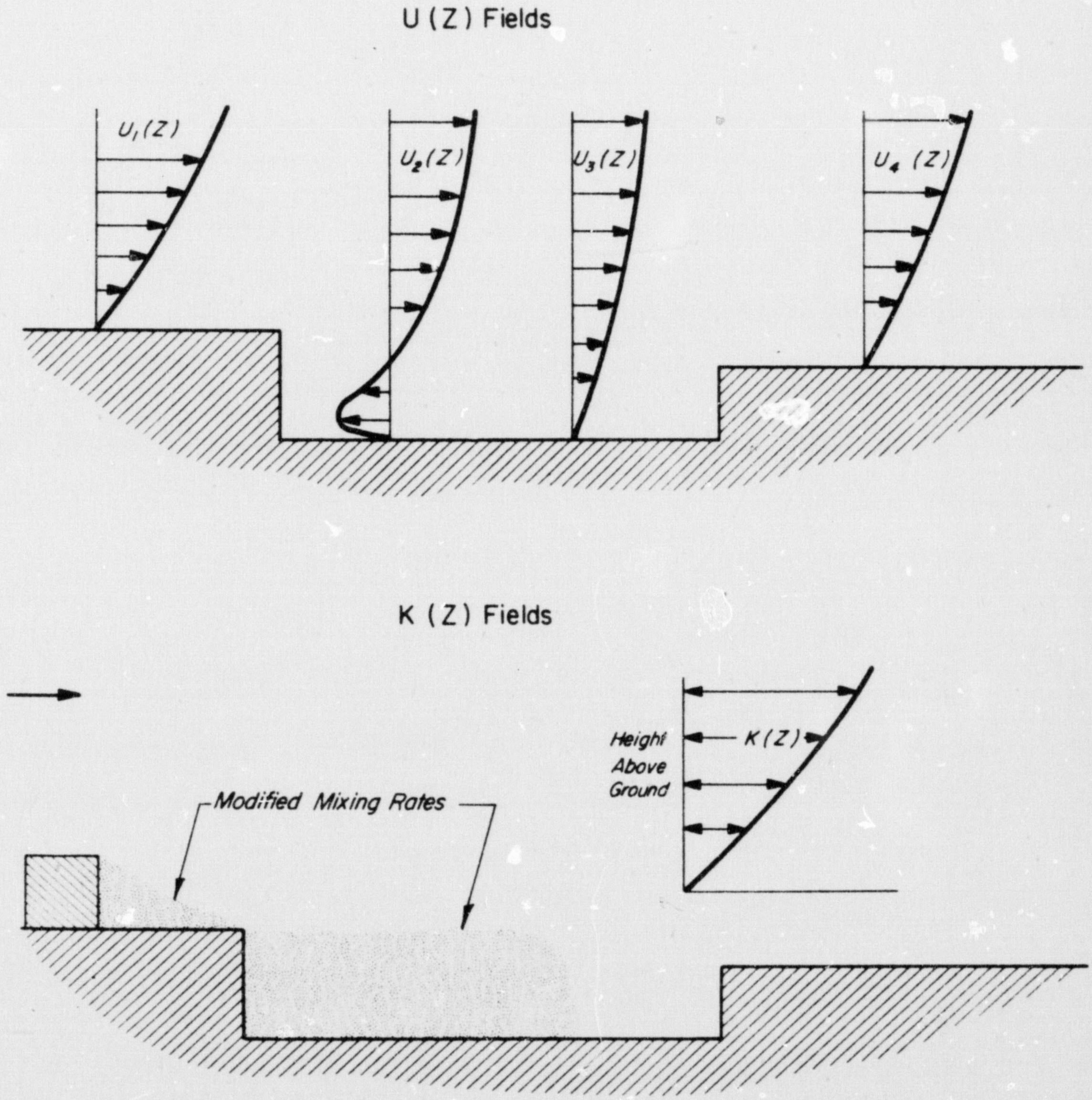
* Egan, B.A., et al, 1973: Development of Procedures to Simulate Motor Vehicle Pollution Levels, ERT Document P-343-FR, Environmental Research & Technology, Inc., Lexington, Mass.; and Egan, B.A. and T.F. Lavery, 1973: Highway Designs and Air Pollution Potential, to be presented at the AIAA Third Urban Technology Conference, Sept. 1973, Boston, Massachusetts.

where

> A and B are functions of wind speed and atmospheric stability conditions. Various roadway configurations alter this basic field. The diffusivities are simply modified on the lee side of obstructions and vanish at all boundaries.

Figure C-6 shows the form of the wind and diffusivity fields expected for a typical depressed highway section. The flow reversal shown in the $U_2(z)$ velocity profile and the areas of modified mixing rates parameterize turbulent eddies found on the lee side of obstructions. These model features are important specific elements in determining air quality levels in areas with complex micrometeorological characteristics.



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PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
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Velocity and Diffusivity Profiles Expected in the Neighborhood of a Depressed Highway Section

Figure C - 6

LAGUARDIA STABILITY WIND ROSE

ANNUAL RELATIVE FREQUENCY DISTRIBUTION STATION =14732 NEW YORK,N.Y./LAGUARDIA 66-70

SPEED(KTS)

DIRECTION	0 - 3	4 - 6	7 - 10	11 - 16	17 - 21	GREATER THAN 21	TOTAL
N	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ENE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
E	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
ESE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSE	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
S	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
SW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WSW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
W	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
WNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
NNW	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
TOTAL	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	

RELATIVE FREQUENCY OF OCCURRENCE OF A STABILITY = 0.000000

RELATIVE FREQUENCY OF CALMS DISTRIBUTED ABOVE WITH A STABILITY = 0.000000

Table C-16

LAGUARDIA STABILITY WIND ROSE

ANNUAL RELATIVE FREQUENCY DISTRIBUTION STATION #14732 NEW YORK,N.Y./LAGUARDIA 55-70

SPEED(KTS)

DIRECTION	0 - 3	4 - 6	7 - 10	11 - 16	17 - 21	GREATER THAN 21	TOTAL
N	0.000870	0.001230	0.000205	0.000000	0.000000	0.000000	0.002305
NNE	0.000225	0.000615	0.000000	0.000000	0.000000	0.000000	0.000840
NE	0.000240	0.001230	0.001230	0.000000	0.000000	0.000000	0.002699
ENE	0.000440	0.000820	0.000410	0.000000	0.000000	0.000000	0.001670
E	0.000450	0.001230	0.000205	0.000000	0.000000	0.000000	0.001885
ESE	0.000215	0.000205	0.000000	0.000000	0.000000	0.000000	0.000420
SE	0.000010	0.000410	0.000000	0.000000	0.000000	0.000000	0.000420
SSE	0.000000	0.000000	0.000205	0.000000	0.000000	0.000000	0.000205
S	0.000015	0.000615	0.000205	0.000000	0.000000	0.000000	0.000835
SSW	0.000425	0.000205	0.000000	0.000000	0.000000	0.000000	0.000630
SW	0.000215	0.000205	0.000410	0.000000	0.000000	0.000000	0.000830
WSW	0.000435	0.000615	0.000205	0.000000	0.000000	0.000000	0.001255
W	0.000230	0.000820	0.000820	0.000000	0.000000	0.000000	0.001870
WNW	0.000235	0.001025	0.000410	0.000000	0.000000	0.000000	0.001670
NW	0.001075	0.001025	0.001025	0.000000	0.000000	0.000000	0.003124
NNW	0.000655	0.001025	0.000820	0.000000	0.000000	0.000000	0.002499
TOTAL	0.005738	0.011270	0.006148	0.000000	0.000000	0.000000	

RELATIVE FREQUENCY OF OCCURRENCE OF B STABILITY = 0.023156

RELATIVE FREQUENCY OF CALMS DISTRIBUTED ABOVE WITH B STABILITY = 0.000410

Table C-16 (Cont'd)

ANNUAL RELATIVE FREQUENCY DISTRIBUTION STATION =14732 NEW YORK,N.Y./LAGUARDIA 66-70

	SPEED(KTS)						
DIRECTION	0 - 3	4 - 6	7 - 10	11 - 16	17 - 21	GREATER THAN 21	TOTAL
N	0.000022	0.000615	0.003279	0.000205	0.000000	0.000000	0.004120
NNE	0.000242	0.000820	0.002049	0.000205	0.000000	0.000000	0.003315
NE	0.000110	0.003074	0.005328	0.000205	0.000000	0.000000	0.008716
ENE	0.000044	0.001230	0.006762	0.000410	0.000000	0.000000	0.008446
E	0.000256	0.001230	0.000820	0.000205	0.000000	0.000000	0.002510
ESE	0.000242	0.000820	0.000205	0.000000	0.000000	0.000000	0.001266
SE	0.000007	0.000205	0.000410	0.000000	0.000000	0.000000	0.000622
SSE	0.000007	0.000205	0.000820	0.000000	0.000000	0.000000	0.001032
S	0.000439	0.000410	0.003484	0.000615	0.000000	0.000000	0.004947
SSW	0.000220	0.000205	0.001434	0.000000	0.000000	0.000000	0.001859
SW	0.000439	0.000410	0.004303	0.000410	0.000000	0.000000	0.005562
WSW	0.000227	0.000410	0.003074	0.000205	0.000000	0.000000	0.003915
W	0.000249	0.001025	0.003893	0.000000	0.000000	0.000000	0.005167
WNW	0.000051	0.001434	0.005328	0.000000	0.000000	0.000000	0.006814
NW	0.000263	0.001434	0.004508	0.000410	0.000000	0.000000	0.006616
NNW	0.000051	0.001434	0.002869	0.000205	0.000000	0.000000	0.004559
TOTAL	0.002869	0.014959	0.048566	0.003074	0.000000	0.000000	

RELATIVE FREQUENCY OF OCCURRENCE OF C STABILITY = 0.069467

RELATIVE FREQUENCY OF CALMS DISTRIBUTED ABOVE WITH C STABILITY = 0.000615

ANNUAL RELATIVE FREQUENCY DISTRIBUTION STATION #14732 NEW YORK,N.Y./LAGUARDIA 66-70

SPEED(KTS)

DIRECTION	0 - 3	4 - 6	7 - 10	11 - 16	17 - 21	GREATER THAN 21	TOTAL
N	0.000231	0.002254	0.018238	0.025410	0.002869	0.000410	0.049412
NNE	0.000255	0.004508	0.013525	0.014959	0.000820	0.000000	0.034067
NE	0.000449	0.003279	0.016393	0.01639[illegible]	0.004303	0.001230	0.042048
ENE	0.000277	0.006557	0.018648	0.0172[illegible]	0.008402	0.003074	0.054171
E	0.000903	0.006967	0.016393	0.00922[illegible]	0.001230	0.000000	0.034715
ESE	0.000236	0.002664	0.008402	0.003074	0.000615	0.000000	0.014990
SE	0.000238	0.002869	0.011680	0.003279	0.000615	0.000000	0.018680
SSE	0.000438	0.002254	0.007992	0.003893	0.001639	0.000000	0.016217
S	0.000482	0.006352	0.026844	0.025615	0.002254	0.000000	0.061548
SSW	0.000853	0.002254	0.012500	0.010246	0.000820	0.000000	0.026672
SW	0.000663	0.003893	0.019057	0.015369	0.001025	0.000000	0.040007
WSW	0.000225	0.001639	0.014139	0.018033	0.001639	0.000410	0.036085
W	0.000024	0.002254	0.012090	0.044262	0.008811	0.000820	0.068262
WNW	0.000231	0.002254	0.013730	0.049795	0.012090	0.002254	0.080354
NW	0.000421	0.000615	0.009426	0.038730	0.013730	0.005123	0.068044
NNW	0.000015	0.001434	0.009836	0.031762	0.007172	0.000615	0.050835
TOTAL	0.005943	0.052049	0.228893	0.327254	0.068033	0.013934	

RELATIVE FREQUENCY OF OCCURRENCE OF D STABILITY = 0.696107

RELATIVE FREQUENCY OF CALMS DISTRIBUTED ABOVE WITH D STABILITY = 0.000615

Table C-16 (Cont'd)

Table C-16 (Cont'd)

ANNUAL RELATIVE FREQUENCY DISTRIBUTION STATION #14732 NEW YORK,N.Y./LAGUARDIA 66-70

SPEED(KTS)

DIRECTION	0 - 3	4 - 6	7 - 10	11 - 16	17 - 21	GREATER THAN 21	TOTAL
N	0.000342	0.007172	0.008607	0.000000	0.000000	0.000000	0.016120
NNE	0.001192	0.007992	0.009016	0.000000	0.000000	0.000000	0.018200
NE	0.000562	0.007787	0.006967	0.000000	0.000000	0.000000	0.015316
ENE	0.000748	0.006557	0.001434	0.000000	0.000000	0.000000	0.008740
E	0.001196	0.008197	0.002664	0.000000	0.000000	0.000000	0.012056
ESE	0.001306	0.002869	0.000820	0.000000	0.000000	0.000000	0.004994
SE	0.000873	0.002049	0.001639	0.000000	0.000000	0.000000	0.004561
SSE	0.000482	0.003484	0.001230	0.000000	0.000000	0.000000	0.005195
S	0.003162	0.012910	0.004303	0.000000	0.000000	0.000000	0.020375
SSW	0.002027	0.007992	0.004303	0.000000	0.000000	0.000000	0.014322
SW	0.000562	0.007787	0.007992	0.000000	0.000000	0.000000	0.016341
WSW	0.002182	0.005123	0.007582	0.000000	0.000000	0.000000	0.014887
W	0.000289	0.004303	0.011066	0.000000	0.000000	0.000000	0.015657
WNW	0.001173	0.006967	0.015984	0.000000	0.000000	0.000000	0.024124
NW	0.000254	0.002459	0.007787	0.000000	0.000000	0.000000	0.010500
NNW	0.000251	0.002254	0.007377	0.000000	0.000000	0.000000	0.009882
TOTAL	0.016598	0.095901	0.098770	0.000000	0.000000	0.000000	

RELATIVE FREQUENCY OF OCCURRENCE OF E STABILITY = 0.211270

RELATIVE FREQUENCY OF CALMS DISTRIBUTED ABOVE WITH E STABILITY = 0.002049

TECHNICAL APPENDIX D

ENVIRONMENTAL NOISE ANALYSES

D.1 PARAMETERS OF ENVIRONMENTAL NOISE

The parameters of environmental noise that play major roles in determining subjective responses are:

(1) The intensity or level of the sound.

(2) The frequency spectrum of the sound.

(3) The time varying character of the sound.

Any scheme for predicting the effect that a noise might have on human response, i.e., the impact of the noise, must, in some way, account for each of the three parameters.

The first two of these parameters are adequately accounted for, in the case of traffic noise, by measuring or calculating the sound in terms of the A-weighted sound level. The A-weighted reading of a standard sound level meter provides a single number measure of the noise stimulus which "weights" the frequency spectrum of the signal in accordance with subjective sensitivity to sounds of different frequency. Hence, A-weighted sound level provides a measure of the level and spectrum of the sound stimulus which correlates well with human response to the stimulus. Having units of dBA (measuring decibels, A-weighting network), A-weighted sound level was used exclusively in this study as the single descriptor of sound level and frequency.

D.2 DESIGN NOISE LEVELS

Noise from the surrounding avenues (Ninth and Tenth) and streets (28th and 29th) was evaluated using the Federal Highway Administration PPM-90-2 draft of 26 April 1972. In brief, this document specified both the method of noise prediction and Design Noise Levels, used as criteria for assessment of noise impact.

The FHWA's Design Noise Levels are based upon the A-weighted sound level exceeded 10 percent of the time. By this choice, the noise is required to fall below the Design Noise Level for 90 percent of the time. The abbreviation for this 10 percentile A-weighted sound level is "L_{10}", with units in "dBA".

It should be pointed out that the L_{10} does not refer to the level exceeded for 10 percent of the entire day. The FHWA procedure concentrates upon the loudest hour of the day, and sets limits upon the noise exceeded for 10 percent of that hour.

The FHWA also requires an evaluation of the predicted noise - in a relative sense - by comparison with the existing ambient noise levels. Such a comparison should predict the annoyance potential of the new noise, at least until the new noise is accommodated. In addition, it provides a direct measure of the effect of the increased traffic upon the noise environment.

Although such a relative comparison is required in FHWA PPM 90-2, no quantitative criteria are specified. For this study, increase in ambient noise levels was assessed using criteria set forth in the National Highway Research Board, Report 117: A Design Guide for Highway Engineers.

INCREASE IN L_{10}	ASSESSMENT
Less than 6 dBA	No impact
6 to 15 dBA	Some impact
More than 15 dBA	Great impact

In general, the more a new noise exceeds the previously existing ambient, the less satisfactory the new noise will be judged by the recipients. With regard to increases in noise level, knowledge of the following relationships will be helpful in understanding the rationale about the assessment.

(1) A one dBA increase in noise cannot be identified in the field.

(2) A three dBA increase in noise level is considered a just noticeable difference in the field.

(3) A ten dBA increase in noise level would be subjectively heard as approximately a doubling in loudness.

The FHWA procedures were developed primarily for use in connection with the construction of new highways and not when new buildings are being constructed near heavy thoroughfares as is the situation in the present project. While the FHWA noise prediction and assessment methods were considered generally appropriate for study purposes, the applicability of noise abatement measures which are required in the document may not apply in this situation.

Since housing is included in the proposed project, the U.S. Department of Housing and Urban Development Transmittal 1390.2 "Noise

Abatement and Control: Departmental Policy, Implementation Responsibilities and Standards", was therefore used as a guideline for necessary noise control measures.

D.3 NOISE ASSESSMENT METHODS

The noise assessment method consisted of measurements of the 10 percentile A-weighted sound level in the immediate area around the VMF site. Concurrently, the existing sound levels around the VMF site were estimated. The 10 percentile A-weighted sound levels were predicted for the design year and finally the predicted sound levels were compared to both the existing sound levels and, since the existing sound already does exceed the FHWA requirements, to sound level design criteria in HUD Transmittal 1390.2. The latter standards are presented as four different categories for which a certain sound level cannot be exceeded more than a particular limiting number of hours per 24-hour day.

D.4 ESTIMATES AND MEASUREMENTS OF EXISTING NOISE

From available traffic information the ambient noise was estimated and field measurements were made to calibrate the estimates.

The estimates were based on the short method from NCHRP Report 117 for the prediction of L_{50} at a specific distance from a major thoroughfare. In order to construct predicted noise contours for L_{10}'s, additions to and modifications of the short method technique were made, using the average number of vehicles per hour, the average vehicle speed and distance from observer to the center of the corridor.

D.5 MEASUREMENT INSTRUMENTATION

Bruel & Kjaer Precision Sound Level Meter Type 2203
Bruel & Kjaer 1" Dia Condenser Microphone Type 4131
Bruel & Kjaer Windscreen Type UA 0237
Bruel & Kjaer Pistonphone Calibrated Sound Source Type 4230
Micronta Hand Counter
Minerva Stopwatch
Tripod

D.6 MEASUREMENT PROCEDURE

(1) The instantaneous (slow-meter response) A-weighted sound level was sampled every 10 seconds.

(2) After every 50 samples, the data were tested by the procedure below to determine if enough samples had been taken. If not, another 50 samples were taken and the data retested.

(3) The test procedure involved the following table:

Total Number of Samples	Upper Error Limit	L_{10}	Lower Error Limit
50	1st sample	5th sample	10th sample
100	5th sample	10th sample	17th sample
150	8th sample	15th sample	23rd sample

During the sampling procedure, the samples were automatically ordered, from highest noise level to lowest noise level. Then after 50 samples had been taken, the 1st sample, the 5th sample, and the 10th sample (all as counted downward from the top of the ordered samples) were noted.

Criterion: If these three samples fell into three adjacent level windows, then the measurements were complete.

After 100 or more samples, one skewing was allowed. This could be either upward or downward, as long as both limits were shifted on the sample in either direction, without changing its width, to attempt to satisfy the criterion. Note that the L_{10} sample is not shifted.

(4) Once the criterion was satisfied, then the measured L_{10} had been determined, with 95 percent confidence, to be within the upper and lower error limits. Since these limits fell in windows adjacent to the L_{10} window, the maximum error was plus-minus 3 dBA.

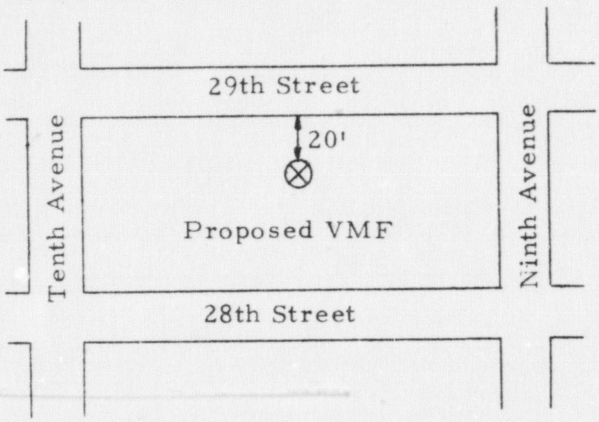
Figure D-1, a field survey working sheet from 29th Street shows an example where the 5th, the 10th, and the 17th sample fell in three adjacent windows constituting, therefore, an L_{10} noise level of 73 dBA, $\pm$ 3 dBA. Figure D-2, a similar working sheet from Ninth Avenue, shows and example with an even more compact grouping than the criterion required, and so the measurements were complete. Locations and results of each of the survey measurements, including those shown in Figures D-1 and D-2, are summarized in Table D-1.

AMBIENT NOISE SURVEY DATA SHEET

POSITION: 29th Street (Midblock)

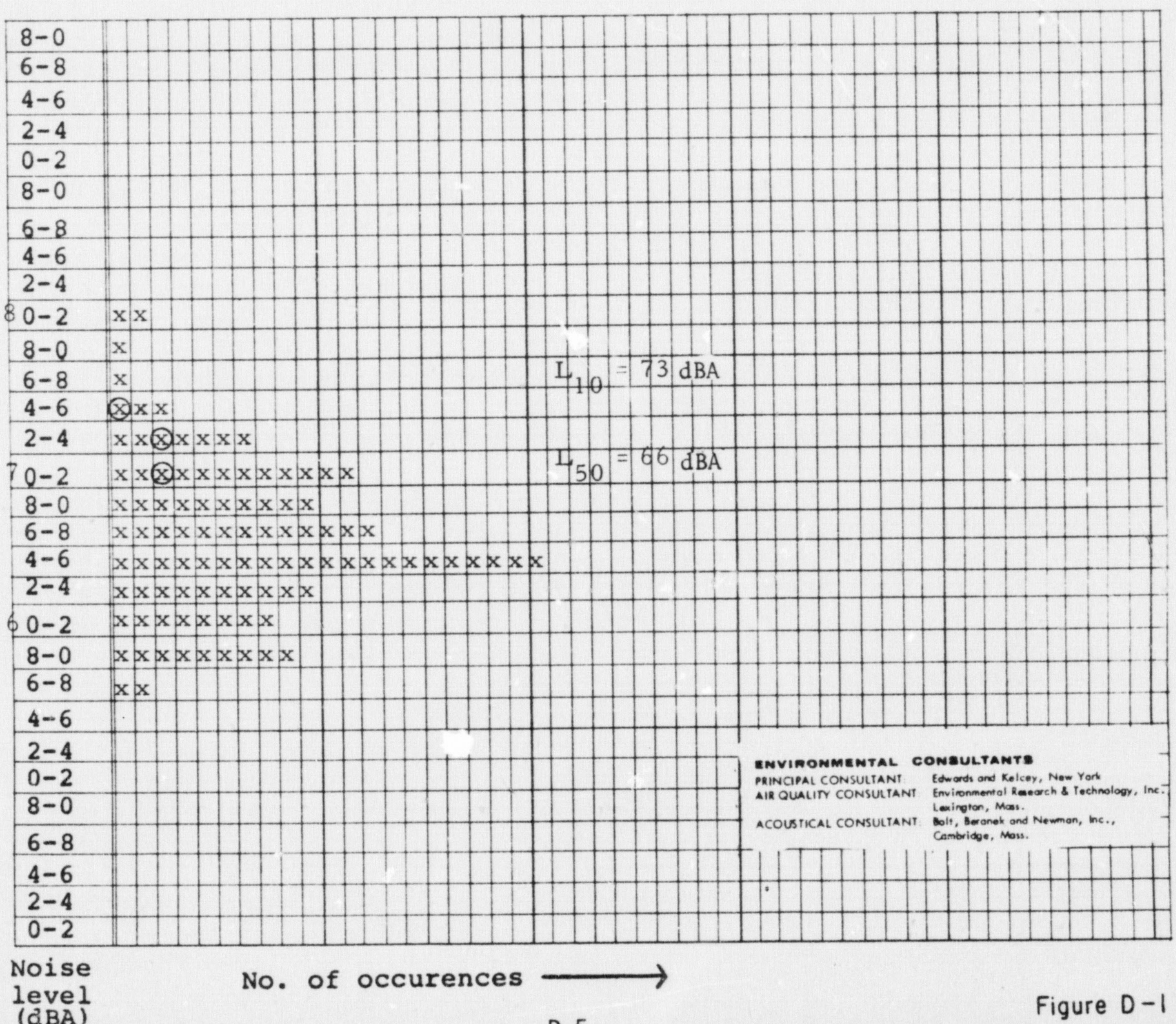
DAY OF WEEK: Tuesday DATE: 10/31/72 TIME: BEGIN 4:05 PM FINISH 4:28 PM

NOTES AND SKETCH:



Number of vehicles passing the site during the 23 minutes:

98 cars
42 trucks



ENVIRONMENTAL CONSULTANTS

PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

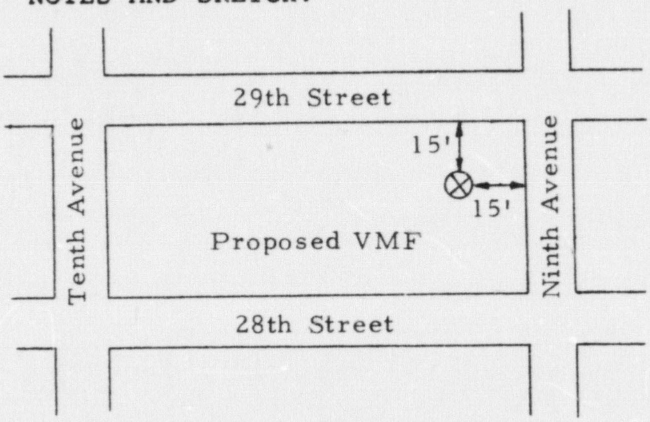
Figure D-1

AMBIENT NOISE SURVEY DATA SHEET

POSITION: Corner of Ninth Avenue and 29th Street

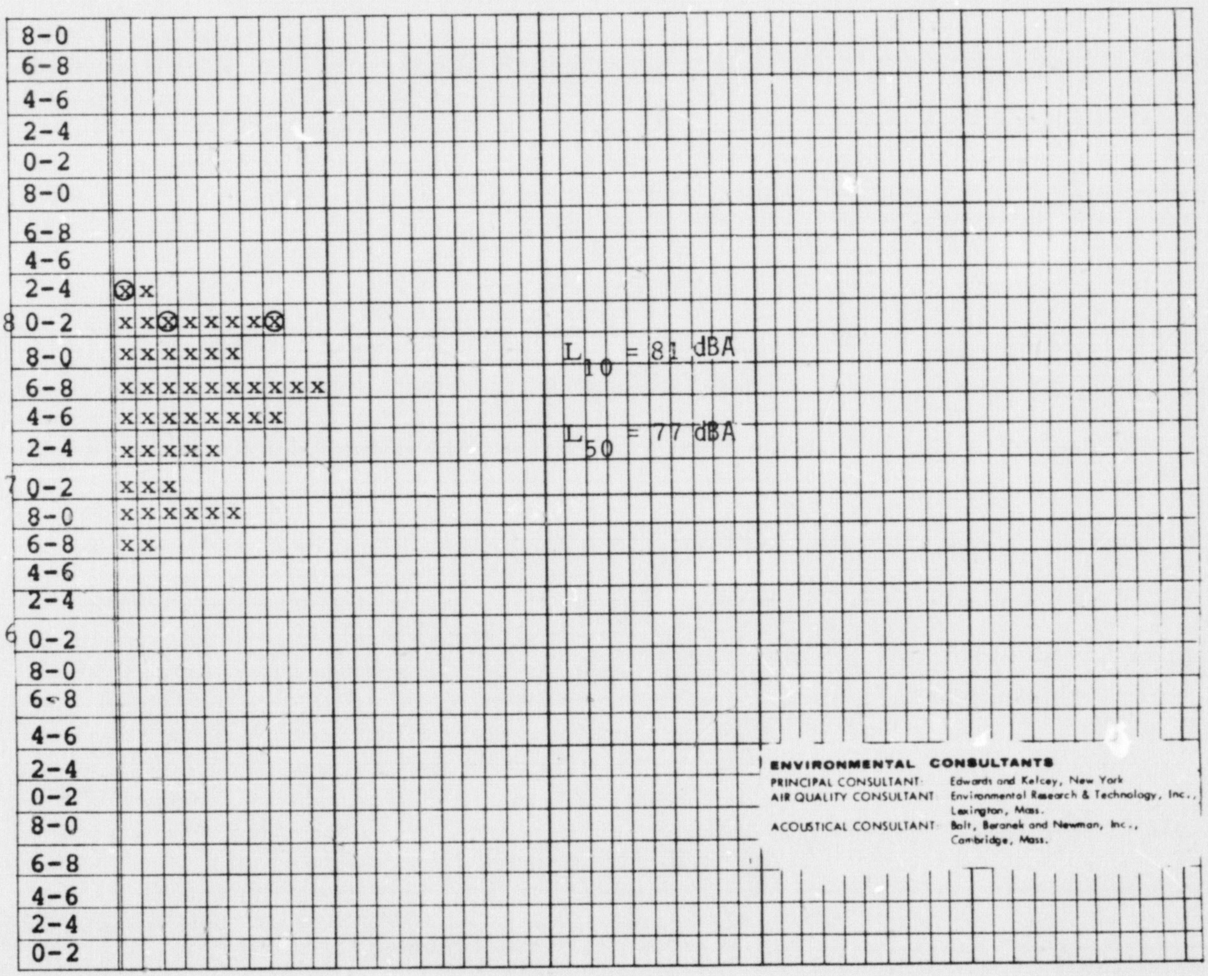
DAY OF WEEK: Tuesday DATE: 10/31/72 TIME: BEGIN 3:15 PM FINISH 3:24 PM

NOTES AND SKETCH:



Number of vehicles passing the site during the 9 minutes:

Ninth Avenue	167 cars	
	78 trucks	
29th Street	55 cars	
	33 trucks	



ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure D-2

Table D-1

AMBIENT NOISE SURVEY RESULTS[1]

Survey Location	Distance from Street (ft)	Time Begin	Time End	Passing Vehicles Auto	Passing Vehicles Truck	L10 (dBA)	L50 (dBA)
(1) Tenth Ave., bet. 28th & 29th St.	20	9:25A	9:45A	108	96	79	71
(2) Tenth Ave., bet. 28th & 29th St.	20	9:47A	10:03A	138	144	79	71
(3) Tenth Ave., bet. 28th & 29th St.	20	10:10A	10:18A	49	54	75	67
(4) Corner Tenth Ave. & 28th St.	15 20	10:25A	10:33A	59 21	78 14	79	73
(5) Corner Tenth Ave. & 29th St.	15 20	10:40A	10:49A	58 16	54 8	79	73
(6) 28th St., bet. Ninth & Tenth Ave.	15	11:00 A	11:20A	26	20	73	63
(7) 28th St., east of Ninth Ave.	15 115	11:30A	11:38A	19 120	12 89	73	68
(8) 28th St., east of Ninth Ave.	15 115	11:45A	11:53A	19 135	6 84	73	67
(9) Ninth Ave., south of 29th St.	15 60	2:50P	3:00P	160 49	62 30	79	72
(10) Ninth Ave., south of 29th St.	15 60	3:01P	3:10P	149 40	57 22	79	71
(11) Corner Ninth Ave. & 29th St.,	15 15	3:15P	3:24P	167 55	78 33	81	77
(12) Corner Ninth Ave. & 29th St.,	15 15	3:25P	3:34P	148 40	60 19	83	75
(13) Near Ninth Ave. & 29th St.	80 70	3:40P	4:00P	386 114	124 48	77	69
(14) 29th St., bet. Ninth & Tenth Ave.	20	4:05P	4:28P	98	42	73	66

Table D-1

AMBIENT NOISE SURVEY RESULTS[1]

(Cont'd.)

Survey Location	Distance from Street (ft)	Time Begin	Time End	Passing Vehicles Auto	Passing Vehicles Truck	L10 (dBA)	L50 (dBA)
(15) 29th St., bet. Ninth & Tenth Ave.	25	4:35P	4:53P	117	37	75	65
(16) Corner 10th Ave. & 29th St.	15	5:00P	5:09P	109	40	79	71
	15			56	24		
(17) Corner 10th Ave. & 29th St.	15	5:15P	5:24P	155	47	79	73
	15			36	27		
(18) Tenth Ave., bet. 28th & 29th St.	20	5:30P	5:40P	114	29	76	69

(1) Survey taken 10/31/72 by Bolt, Beranek & Newman Inc.

TECHNICAL APPENDIX E

SUPPLEMENTARY NOISE ANALYSES

E.1 MEASUREMENT PERIODS

Supplemental measurements were conducted on the days of June 7 to June 8, 1973. Recordings of the noise were made in the positions listed below for the particular time periods.

June 7, 1973

Midnight - 7:00 A.M.	Morgan Station
7:00 A.M. - 3:00 P.M.	Morgan Station and Penn Station South Houses
3:00 P.M. - Midnight	Penn Station South Houses and P.S. 33

June 8, 1973

Midnight - 3:00 P.M.	Penn Station South Houses and P.S. 33

All the measurements were made on the roofs of the buildings. The height of the microphone above Ninth Avenue in the three locations was:

Public School 33	ca. 30 feet
Morgan Station	ca. 160 feet
Penn Station South Houses	ca. 200 feet

E.2 MEASUREMENT TECHNIQUE

The noise level was recorded continuously during the above-mentioned periods using the following equipment:

B & K Precision Sound Level Meter Type 2203
B & K 1" Diameter Condenser Microphone Type 4131
B & K Pistonphone, Calibrated Sound Source Type 4420
B & K Graphic Level Recorder Type 2305
B & K Statistical Distribution Analyzer Type 4420
BBN Automatic Noise Monitoring System Type 704
GR 1" Condenser Microphone Type 1560
GR Preamplifier Type P40
Triplet Solid State Voltameter, Model 601, Type 1

Miscellaneous accessories such as headphones, anemometer, automatic timer, analog signal compressor, battery pack, polyurethane windscreens, cables, connectors, etc.

A schematic layout of the equipment is shown in Figure E-1.

E.3 MEASUREMENT RESULTS

In recent years more and more attention is being given to the fluctuations in urban noise and to the adequate description of the time pattern of noise levels, that is, the noise exposure over some specified time period. The noise exposure has been described in terms of the statistical distribution over a number of one-hour periods. The sound levels exceeded 90 percent, 50 percent, 33.3 percent, 10 percent, 4.2 percent and 1 percent of the time are designated by symbols L_{90}, L_{50}, $L_{33.3}$, L_{10}, $L_{4.2}$, L_1. The results of the measurements are shown in the following tables: E-1, E-2, and E-3.

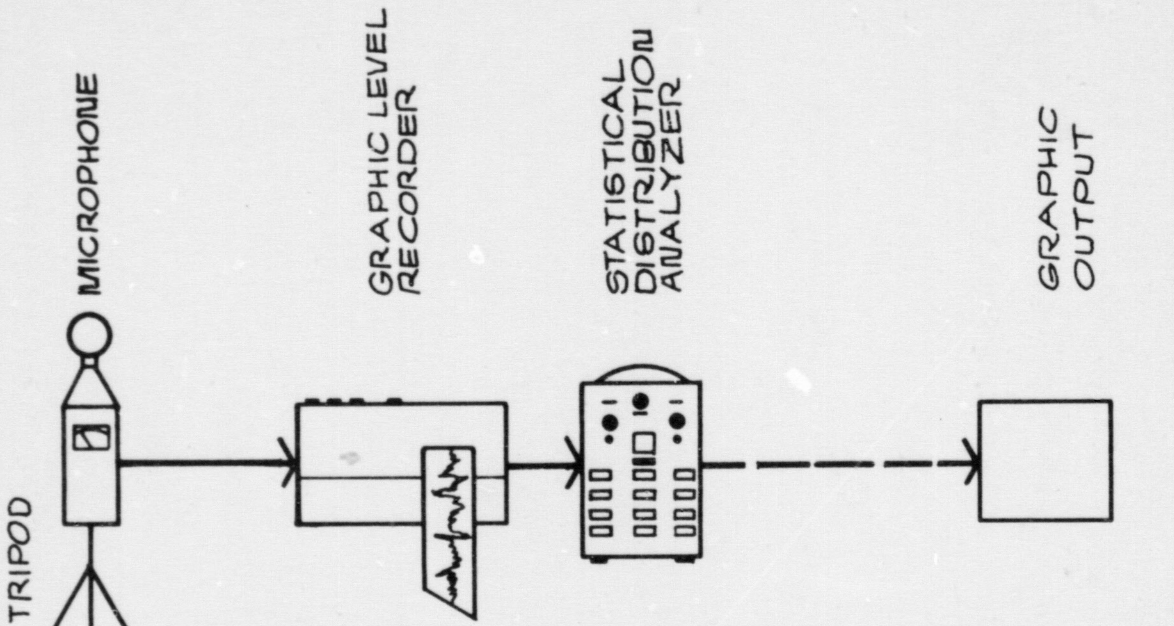
During the measurement retention period, there was no significant precipitation and no wind gusts above approximately 10 mph.

E.4 NOISE DURING CONSTRUCTION

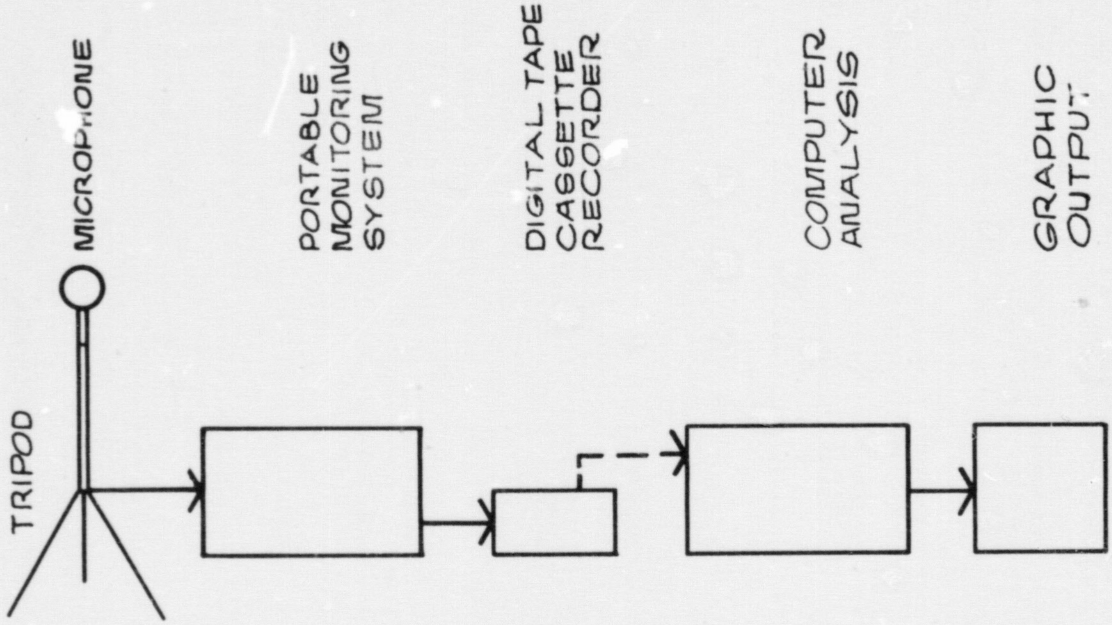
Analysis of noise impacts during construction focuses on the earth and rock excavation phases as being the periods of greatest construction noise. Types of equipment, their numbers, and the time frames for these excavation phases have been estimated by the A/E (architect/engineer) firm designing the project, reflecting below-grade building elevations and configurations per the A/E's 22 June 1973 design concept. More recently, this concept has been revised to reduce the amount of excavation, particularly rock, for reasons of economy......at the same time reducing the period over which noise from excavation activities would be present, or the number of pieces of equipment required. Primarily, the length of time over which noise impacts would be present would be reduced, although noise levels may be reduced as well. This, therefore, is a conservative appraisal of construction noise impacts.

According to estimates by the project A/E firm, six (6) compressors, nine (9) rock drills, twenty (20) jack hammers, three (3) steam shovels, and three (3) bulldozers will be utilized for excavating operations. All rock removal will be done by blasting at time intervals of approximately 30 minutes.

Noise levels near the site during the excavation phase of the construction process are expected to be higher than during other stages. This is due, in part, to the expected nearly continuous operation



INSTRUMENTATION FOR PENN STATION SOUTH HOUSES



INSTRUMENTATION FOR MORGAN STATION AND PUBLIC SCHOOL 33

ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

NOISE MEASUREMENT INSTRUMENTATION

Figure E-I

Table E-1

MORGAN STATION

STATISTICAL DISTRIBUTION OF NOISE IN dBA

Time Period	L_{90}	L_{50}	$L_{33.3}$	L_{10}	$L_{4.2}$	L_1	Traffic on Ninth Avenue Trucks	Traffic on Ninth Avenue Cars
June 7, 1973								
12-1 a.m.	64	66	67	69	71	73.5		
1-2 a.m.	64	66	67	69.5	72	76		
2-3 a.m.	64	65.5	66.5	69	71	75		
3-4 a.m.	63.5	65.5	66.5	69.5	71.5	74.5		
4-5 a.m.	63.5	65.5	66.5	69	71	74.5		
5-6 a.m.	62.5	65	66.5	70.5	73.5	76		
6-7 a.m.	65.5	68	69.5	73	74.5	77		
7-8 a.m.	67.5	70	71.5	74.5	76	80	96	2108
8-9 a.m.	69.5	72	73.5	75.5	76.5	78.5	75	1551
9-10 a.m.	69	71.5	72.5	74.5	75.5	77.5	78	1632
10-11 a.m.	69	71.5	72.5	74.5	76	78.5	92	1576
11-12 a.m.	69	71	72	74	75.5	78	60	1347
12-1 p.m.	68.5	70.5	71.5	73.5	75.5	77.5	52	1338
1-2 p.m.	68.5	70.5	71.5	73.5	75	77.5	36	1542
2-3 p.m.	68	70	71	73	74	75.5	32	1493

Table E-2

PUBLIC SCHOOL 33
STATISTICAL DISTRIBUTION OF NOISE IN dBA

Time Period	L_{90}	L_{50}	$L_{33.3}$	L_{10}	$L_{4.2}$	L_1	Traffic On Ninth Avenue Trucks	Cars
June 7, 1973								
3-4 p.m.	63	70.5	73.5	77.5	79.5	83	38	1676
4-5 p.m.	63	71	74	78	80	82.5	23	1140
5-6 p.m.	61.5	68.5	72.5	77	79	82	20	1045
6-7 p.m.	59.5	66.5	71	75	77	81	10	994
7-8 p.m.	59.5	66.5	70.5	74.5	77	81.5	10	579
8-9 p.m.	59	66.5	70	74.5	78	85	4	689
9-10 p.m.	58	66	69	73.5	76	80.5	6	667
10-11 p.m.	56.5	64	68	73	75	79	5	319
11-12 p.m.	56	64	68	73.5	76.5	81	12	720
June 8, 1973								
12-1 a.m.	55	62	67	72.5	75	79.5	8	593
1-2 a.m.	54	60	65	72.5	75	83.5	22	330
2-3 a.m.	53.5	59	63.5	71.5	76.5	82.5	14	238
3-4 a.m.	53.5	58.5	62	71	75	81	14	268
4-5 a.m.	54.5	60	64.5	73.5	78	84	20	294
5-6 a.m.	56.5	61.5	66.5	75.5	80.5	85	33	344
6-7 a.m.	58.5	64.5	70	78.5	82	85.5	72	760
7-8 a.m.	61	70	74	79	82	85	97	1506
8-9 a.m.	64.5	72.5	75.5	79.5	82	85	121	1849
9-10 a.m.	66	73	75.5	79.5	81.5	84.5	84	1314
10-11 a.m.	63	72	75	79	81	83.5	71	1480
11-12 a.m.	63.5	72	74.5	79	81	83.5	45	1558
12-1 p.m.	64	71.5	74.5	78.5	81	84	60	1386
1-2 p.m.	64	72	75	78	80	83.5	32	1226
2-3 p.m.	64	71	74	78	81	84	45	1225

Table E-3

PENN STATION SOUTH APARTMENT BUILDING(1)
STATISTICAL DISTRIBUTION OF NOISE IN dBA

Time Period	L_{90}	L_{50}	$L_{33.3}$	L_{10}	$L_{4.2}$	L_1
June 7, 1973						
7-8 a.m.	63	67	68	72.5	74.5	79
8-9 a.m.	65	68.5	69.5	72.5	74.5	76.5
9-10 a.m.	65	68.5	70	73	75	77
10-11 a.m.	64.5	68	69.5	73	74.5	77
11-12 a.m.	64.5	67.5	69	72.5	74	76.5
12-1 p.m.	64.5	67.5	69	71.5	73.5	77
1-2 p.m.	63.5	67	68.5	71.5	73.5	76
2-3 p.m.	64	67.5	68.5	71.5	73.5	76
3-4 p.m.	63.5	67	68.5	71.5	73	75
4-5 p.m.	64	67	68	71.5	73.5	75.5
5-6 p.m.	63.5	66.5	67.5	71	73	75
6-7 p.m.	61.5	64.5	66.5	68.5	70	72.5
7-8 p.m.	60.5	63.5	65	68	69.5	73
8-9 p.m.	60.5	63	64.5	68	70.5	75
9-10 p.m.	58.5	61.5	63.5	67	69.5	76.5
10-11 p.m.	57.5	60.5	62	66	68.5	71
11-12 p.m.	57	60	62	66.5	68.5	74
June 8, 1973						
12-1 a.m.	56	59.5	61.5	6[illegible]	67.5	71.5
1-2 a.m.	55	58.5	60.5	66	70.5	75.5
2-3 a.m.	55	58	60.5	64.5	68	73.5
3-4 a.m.	54.5	58	60	64.5	68	73
4-5 a.m.	55	59	60.5	67	70.5	75
5-6 a.m.	56.5	60	62.5	68	72.5	75.5
6-7 a.m.	58	62.5	64.5	71	74.5	77
7-8 a.m.	65	66	68	72	75.5	77
8-9 a.m.	64.5	67.5	69	72.5	75	77
9-10 a.m.	64	68	69.5	72	74	76.5
10-11 a.m.	63	67	68.5	72	73.5	75.5
11-12 a.m.	64	67.5	69	72.5	74	76
12-1 p.m.	63.5	66.5	68.5	71.5	73.5	75.5
1-2 p.m.	63.5	67.5	68	71.5	74	76.5
2-3 p.m.	63	67	68	71	72	74.5

(1) On Ninth Avenue between 28th and 29th Streets.

of many pieces of equipment including rock drills and jack hammers which produce relatively high noise levels. Two sets of noise levels for construction equipment contained in a 1971 U.S. Environmental Protection Agency report* and adopted as noise level limits for application to federal construction projects by the General Services Administration are shown below. These noise level limits expressed in dBA apply at a distance of 50 feet from source.

Equipment	Effective 7/1/72	Effective 1/1/75
Bulldozers	80	75
Pumps	76	75
Compressors	81	75
Jack hammers	88	75
Rock Drills	98	80

The noise control code of the City of New York specifies limits for some types of construction equipment. In particular, NYC code limits for air compressors measured at a distance of one meter from the source are applicable to this analysis:

	Sound Level Limit in dBA		
	Existing	Effective 6/30/74	Effective 12/31/75
Compressors Manufactured before 12/31/72	90	80	Not specified
after 12/31/72	85	75	70

Excavation noise levels were predicted by means of a short computer program for various elevations using the above 1972 and 1975 limits as source levels. In the case of compressors the limit of 80 dBA at one meter distance in the NYC code was used. For a conservative analysis, pieces of equipment are assumed to be operating simultaneously. Expected sound levels from excavation operations were calculated for different elevations.

Figure E-2 illustrates the maximum expected noise level during excavation of the earth overburden. This phase will take an estimated 10 weeks, with removal of the overburden required down to about 15 feet below street grade at Ninth Avenue to about 50 feet below street grade at Tenth Avenue.

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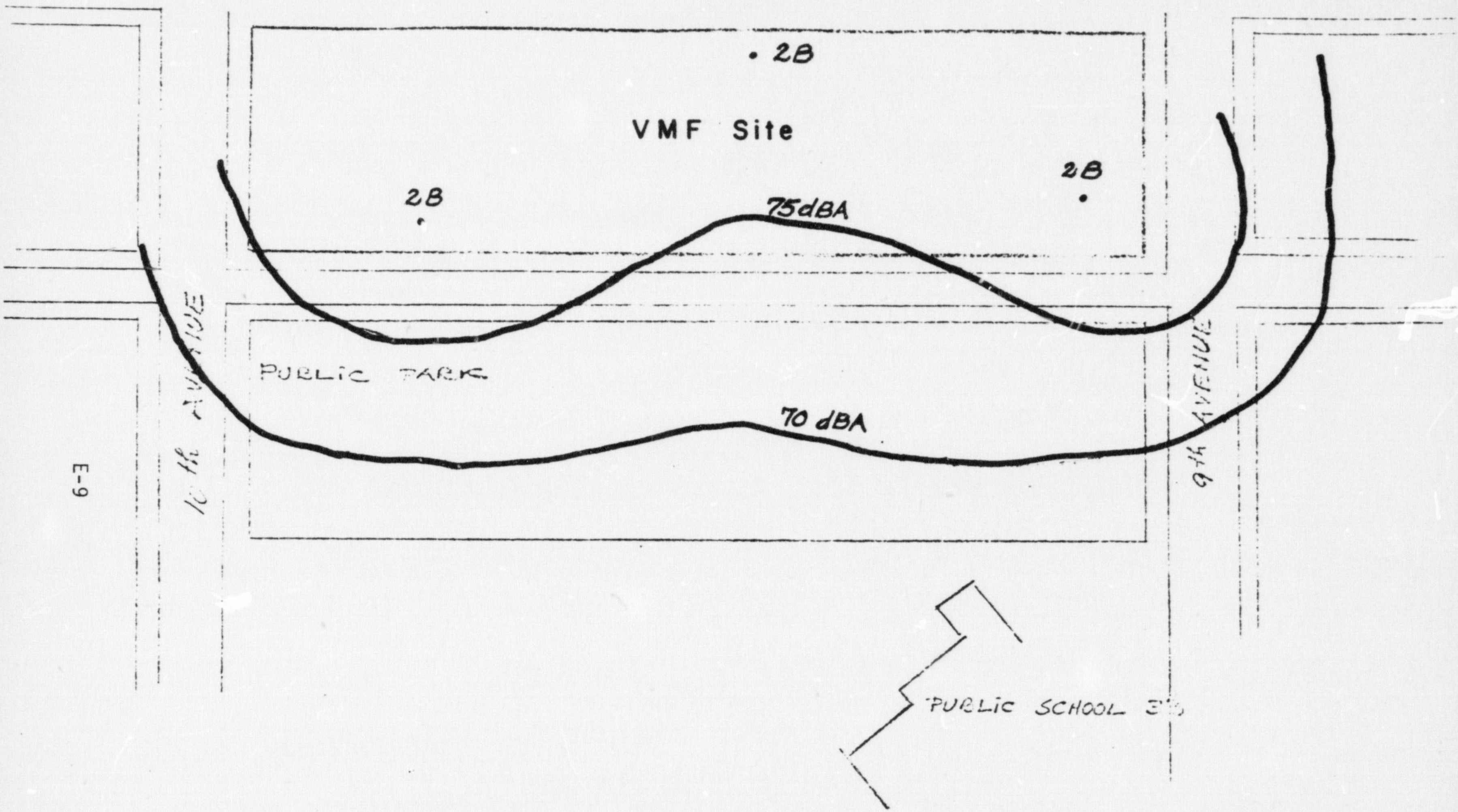
* Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances; NTID300.1; U.S. Environmental Protection Agency; December 31, 1971.

Rock breaking and excavation will take approximately 34 weeks. Noise levels for two random arrangements of construction equipment (source patterns A and B) were calculated for an "average" depth of 35 feet below street level. Results are shown in Figures E-3 and E-4. These show that little difference is noted in noise levels between the two random arrangements; therefore, subsequent calculations were performed for only one layout (source pattern A) as being representative of excavation noise impacts.

Both 1972 and 1975 source levels were used for noise level calculations at 35 feet and 60 feet below grade, the latter representing the approximate bottom of rock excavation. Figures E-3, E-5, E-6, and E-7 illustrate the findings of these calculations. Figure E-8 shows the results of calculations using 1972 source levels with the anticipated sloping rock surface from a 15-foot depth at Ninth Avenue to a 50-depth at Tenth Avenue.

Noise contours are drawn in dBA for continuous sound levels and an observer elevation of five (5) feet above grade. These contours reflect only construction equipment, not street traffic and the shielding effects of some buildings. Figures E-2 through E-8 use these abbreviations to identify sources: Rd - rock drill, C - compressor, 3J - three jackhammers, P - pump, and 2B - bulldozer plus power shovel.

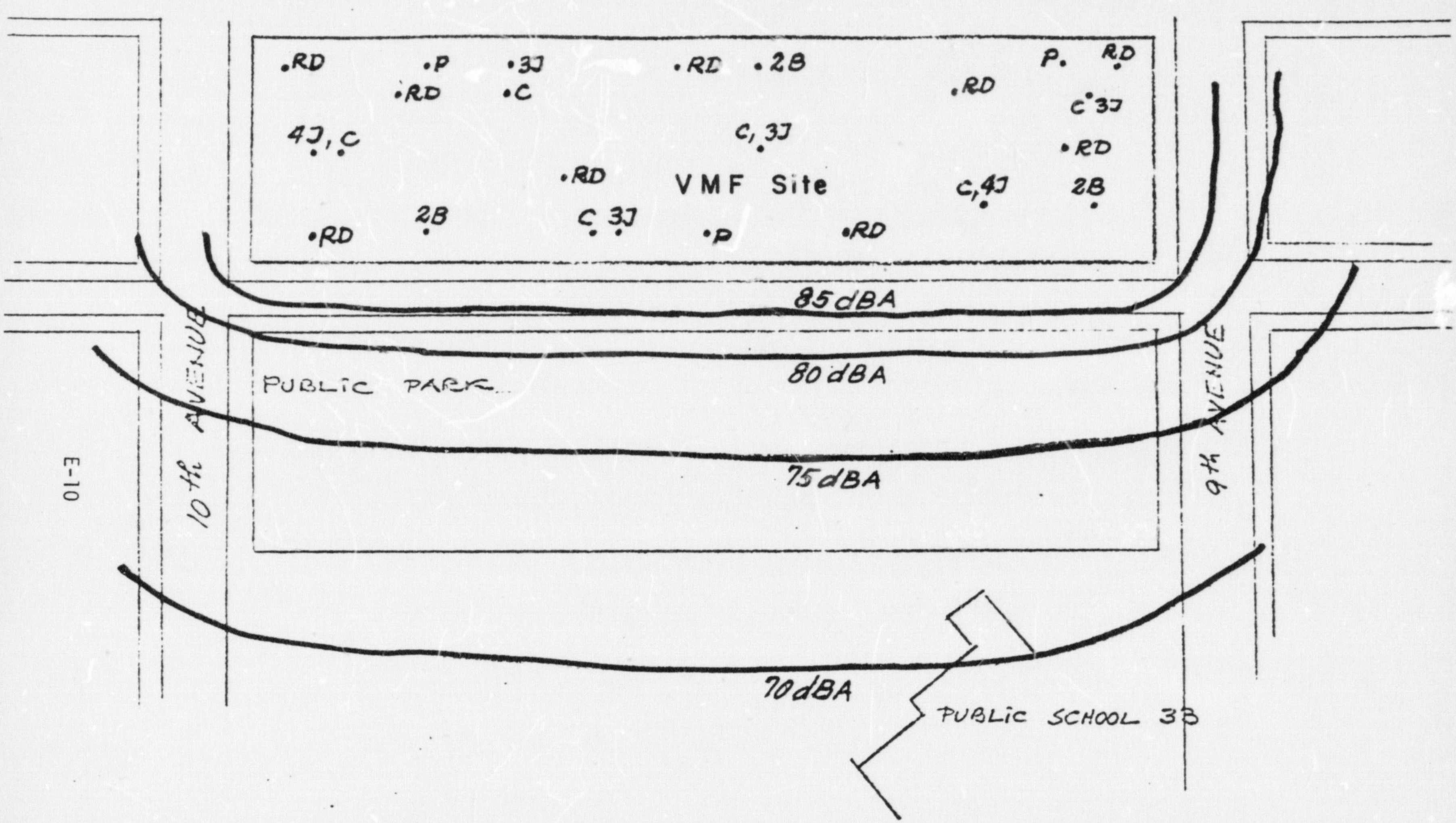


SOURCES AT 5 FEET ABOVE GRADE
1972 SOURCE LEVELS

CONSTRUCTION NOISE

ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure E – 2

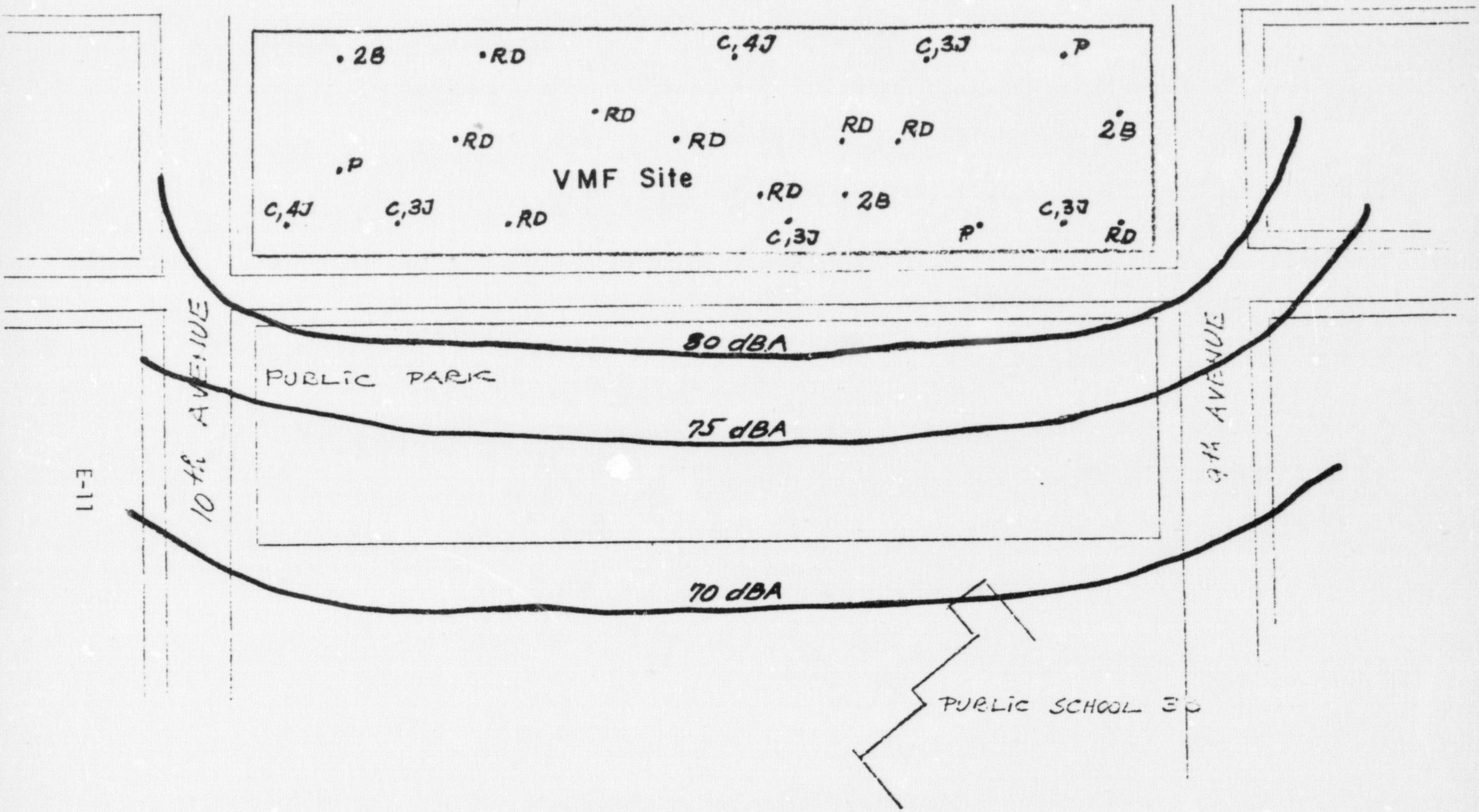


SOURCE PATTERN A
SOURCES AT 35 FEET BELOW GRADE
1972 SOURCE LEVELS

CONSTRUCTION NOISE

ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure E – 3

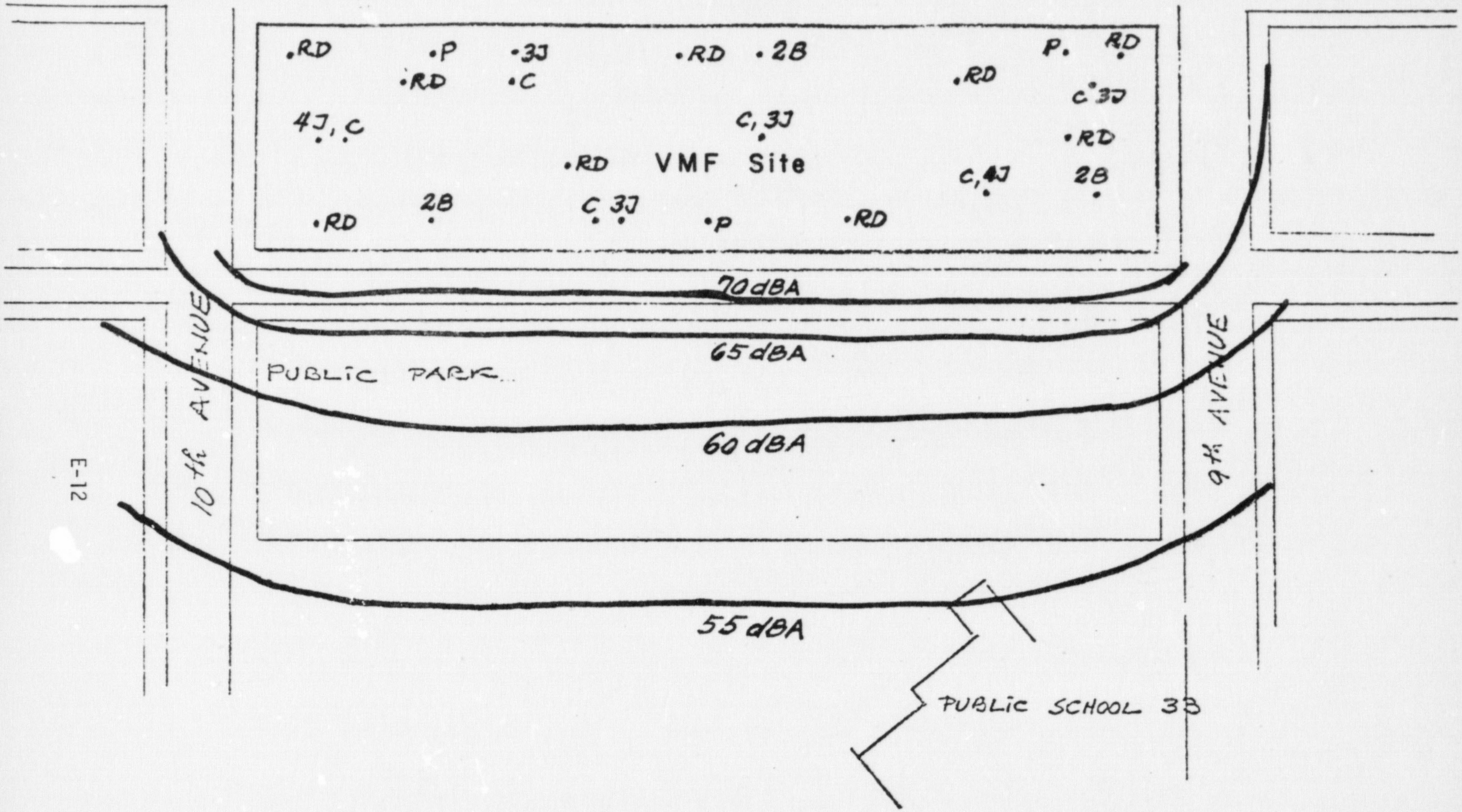


SOURCE PATTERN B
SOURCES AT 35 FEET BELOW GRADE
1972 SOURCE LEVELS

CONSTRUCTION NOISE

ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure E-4

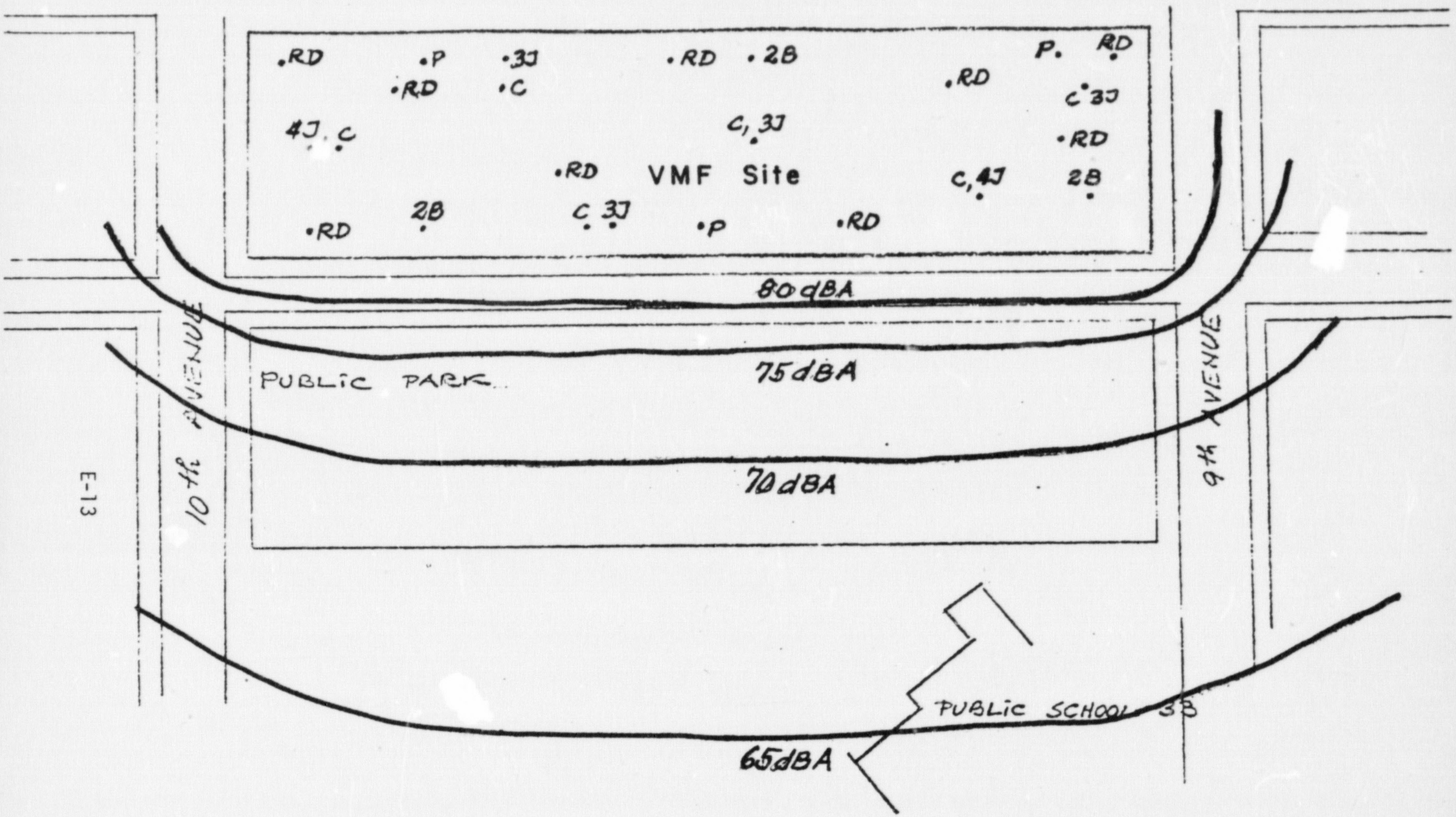


SOURCE PATTERN A
SOURCES AT 35 FEET BELOW GRADE
1975 SOURCE LEVELS

CONSTRUCTION NOISE

ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure E – 5

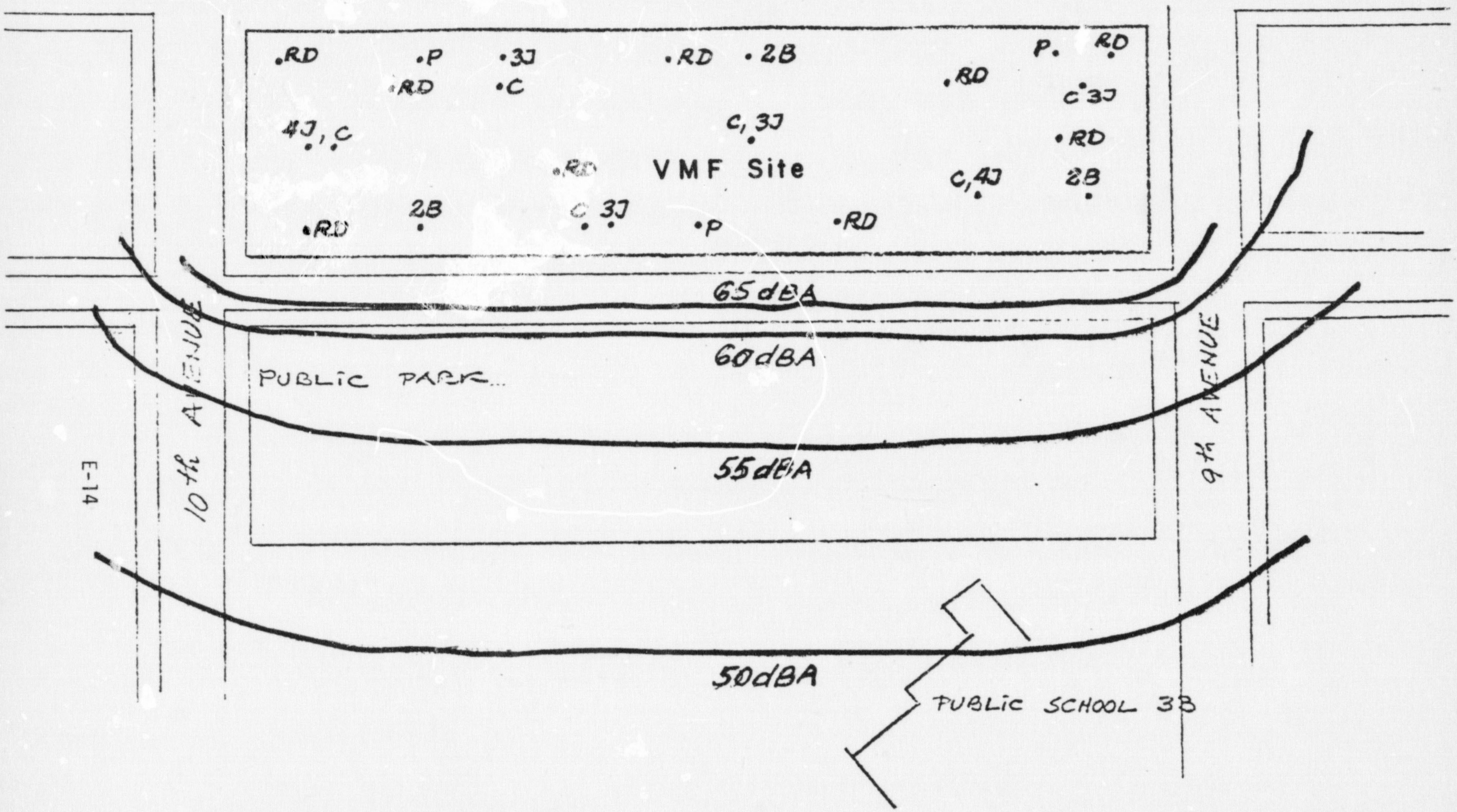


SOURCE PATTERN A
SOURCES AT 60 FEET BELOW GRADE
1972 SOURCE LEVELS

CONSTRUCTION NOISE

ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure E-6

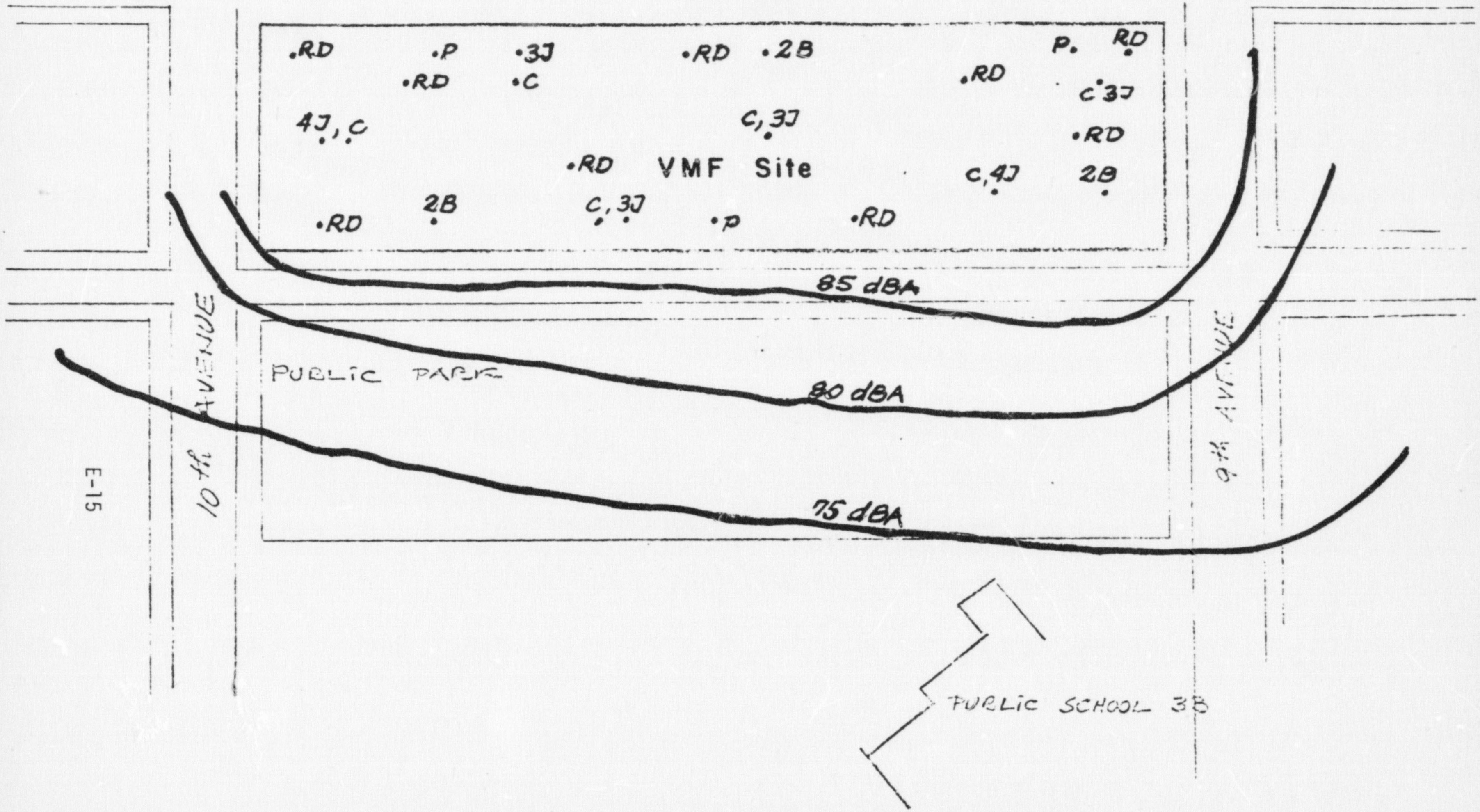


SOURCE PATTERN A
SOURCES AT 60 FEET BELOW GRADE
1975 SOURCE LEVELS

CONSTRUCTION NOISE

ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure E-7



SOURCE PATTERN A
SOURCES AT 50 FEET TO 15 FEET BELOW GRADE
1972 SOURCE LEVELS

CONSTRUCTION NOISE

ENVIRONMENTAL CONSULTANTS
PRINCIPAL CONSULTANT: Edwards and Kelcey, New York
AIR QUALITY CONSULTANT: Environmental Research & Technology, Inc., Lexington, Mass.
ACOUSTICAL CONSULTANT: Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Figure E - 8